Plas Newydd Farm
Wetlands and Other Waters Delineation Report

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Acronyms and Abbreviations

CCGIS	Clark County Geographic Information System
County	Clark County
Corps	United States Army Corps of Engineers
CWA	Clean Water Act
DLC	Donation Land Claim
Ecology	Washington Department of Ecology
EPA	Environmental Protection Agency
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
FEMA	Federal Emergency Management Area
FR-20	Forestry with minimum lot size of 20 acres
GPS	Global Positioning System
HCA	Habitat Conservation Area
HGM	hydrogeomorphic
LiDAR	light detection and ranging
LUBTh	lacustrine unconsolidated bottom, semipermanently-tidally, diked/impounded
LUBVh	lacustrine unconsolidated bottom, permanently-tidally flooded, diked/impounded
LWI	local wetland inventory
NAVD88	North American Vertical Datum of 1988
NOAA	National Oceanic and Atmospheric Administration
NOWData	NOAA Online Weather Data
NRCS	National Resource Conservation Service
NWI	National Wetland Inventory
OBL	obligate
OHWM	ordinary high water mark
PABFx	palustrine aquatic bottom, semipermanently flooded, excavated
PEMA	temporarily flooded palustrine emergent
PEMAd	temporarily flooded palustrine emergent, partially drained/ditched
PEMC	palustrine emergent, seasonally flooded
PEMCd	palustrine emergent, seasonally flooded, partially drained/ditched
PEMCx	palustrine emergent, seasonally flooded, excavated

PEM1Fd	palustrine emergent, persistent, semipermanently flooded, partially drained/ditched
PEM1Fx	palustrine emergent, persistent, semipermanently flooded, excavated
PEMKh	palustrine emergent, artificially flooded, diked/impounded
PFO1A	broad-leaved deciduous, temporarily flooded palustrine forested
PFO1C	palustrine forested, broad-leaved deciduous, seasonally flooded
PHS	Priority Habitats and Species
PSS1C	palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded
PUBKh	palustrine unconsolidated bottom, artificially flooded, diked/impounded
R1EMR	riverine tidal emergent, seasonal-tidal flooding
R1UBV	riverine-tidal unconsolidated bottom, permanently- tidally flooded
SMA	Shoreline Management Act
SWPCA	State Water Pollution Control Act
TNW	traditionally navigable water
Type Ns	non-fish bearing, seasonal
Type S	Shoreline of the State
UPL	upland
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WNHP	Washington Natural Heritage Program
WRIA	Water Resource Inventory Area

1 Introduction and Background

This report has been prepared to document the extent and condition of existing wetlands and other waters within the parcel boundaries for Plas Newydd Farm that are regulated under the Clean Water Act (CWA) by the U.S. Army Corps of Engineers (Corps) and the Washington Department of Ecology (Ecology). It also provides wetland ratings and associated wetland buffer widths to satisfy the Wetland Protection Ordinance requirements of Clark County (County; Ordinance No. 2006-05-027; Chapter 40.450 of the County Code) as well as an assessment of other Critical Areas regulated under Subtitle 40.4 of the County Code. This report complies with Corps, Ecology, and County standards and will be used to fulfill regulatory requirements for permitting of the proposed wetland mitigation and conservation bank project.

1.1 Project Background

The privately owned Plas Newydd Farm (Site) is located at the confluences of the Lewis River and Gee Creek with the Columbia River in Washington (Figure 1-1) and includes wetland, stream, and riparian habitat valuable for key terrestrial and aquatic species. The Plas Newydd Conservation Program is completing delineations of wetlands and other waters within the Site to establish baseline conditions in advance of ecological restoration efforts related to development of a wetland mitigation and conservation bank referred to as the Wapato Valley Mitigation and Conservation Bank.

1.2 Site Description

The Site is located at 33415 NW Lancaster Road in Clark County and includes broad floodplain and riparian areas surrounding the steep basalt slopes of the Middle Lands, a 108-foot high outcrop composed of Miocene-era volcanic Grande Ronde Basalt flow. The elevation for the Site ranges from approximately 8 feet in the North American Vertical Datum of 1988 (NAVD88; channels and lakes include lower elevations, but depth unknown) to 104 feet in the Middle Lands. The Site is an active farm and has been used for the past 40 years for a mix of sustainable timber harvest, leased cattle grazing, leased waterfowl hunting, U.S. Department of Agriculture (USDA) National Resources Conservation Service (NRCS) funded farm activities, and quarries permitted for farm use. Cattle are grazed on various locations of the Site from early spring through late fall. Maintenance of the grazed areas has historically included plowing, ripping, and seeding with forage species. Other historical land management actions that have altered the Site

include conversion of floodplain to agricultural land through construction of levees and diversion of water, and filling, grading, dredging and placing of dredge spoils.

The location and management history of the Site presents challenges to the performance of wetland delineation and warrants thorough consideration of historical and current conditions that have influenced wetland field indicators. The Columbia River dominates the local hydrological conditions and its flow stage varies widely, seasonally and inter-annually. Although the Columbia River is dam-controlled, high flow events occur during the growing season, and of durations sufficient to drive wetland hydrological conditions. River stages for 15 previous growing seasons were evaluated to interpret Site hydrological indicators and determine what elevations of the Study Area are commonly subjected to surface water flooding during the growing season.

Much of the floodplain area of the Site is underlain by sandy soils deposited by the Columbia and Lewis Rivers, or Gee Creek, which feature hydric soil indicators. Since the formation of these soils, upstream damming has greatly affected river flows, decreasing frequency and stage of peak flow events. Hydric soil indicators were, therefore, considered relict where vegetation communities or wetland hydrology (including river stage data) indicate wetland conditions are no longer supported. Most upland data plots include relict hydric soil indicators.

Because of the frequent flooding and Site vegetation management, floodplain areas include vegetation tolerant of long duration and frequent inundation, and broad areas vegetated by a mix of native riparian and pasture species, which occur in both upland and wetland. These species are adapted, either through natural selection or by cultivation, to occur across a range of hydrologic conditions.

To account for such uncertainties, delineation study methods for the Site focused on identifying areas where established wetland field indicators, as defined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Corps 2010) and the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), were corroborated by available data and Site history information. Areas were determined to be wetland where field and supporting data showed correlation of wetland vegetation, hydric soils, and wetland hydrologic conditions.

The Site has been divided into three Study Areas, based primarily on hydrological conditions: the Lewis River and Gee Creek Study Area is subjected to surface water flooding by the Lewis and Columbia Rivers and Gee Creek as well as hyporheic ground water fluctuations; the Farm Fields and Lancaster Lake Study Area is protected from overbank flooding by levees along the Lewis River and Gee Creek, so hydrology is driven almost entirely by hyporheic groundwater;

and the Gee Creek - South Backwater Study Area is subjected to frequent inundation by Gee Creek, and indirectly, the Columbia River. The Study Areas are separated from one another by the Middle Lands; each Study Area includes a 200-foot wide section of the lower slope of the Middle Lands adjacent to the wetland floodplain areas. Maps of each Study Area are presented in Figures 1-1 through 1-4.

1.2.1 Lewis River and Gee Creek Study Area

The Lewis River and Gee Creek Study Area consists of portions of two tax parcels (tax lot # 217593000 and 217798000) totaling 372.72 acres located in Sections 1, 2, and Donation Land Claim (DLC) 37, Township 4 North, Range 1 West (Figure 1-2). The Study Area is located at the confluence of the Lewis River and Gee Creek with the Columbia River, encompassing floodplain areas, as well as the west-facing slope of the Middle Lands. The Lewis River forms the northern boundary, the Columbia River forms the western boundary, and Gee Creek, along with the Ridgefield National Wildlife Refuge, forms the southern boundary; the east is bounded by a levee-protected grazed pastureland, included in the Farm Fields and Lancaster Lake Study Area, and the upper slopes of the Middle Lands. Topography within the floodplain extent of the Study Area is gently undulating, dissected by sloughs and streaked by a series of swales and ridges, or scroll bar formations; slopes range in gradient from 1-3% and elevation averages approximately 14 feet, NAVD88. The portion of the Middle Lands included within the Study Area consists of steep, rocky slopes at gradients of 10-20% and elevations of 20-104 feet, NAVD88.

The Study Area is zoned for forestry with a minimum lot area of 80 acres (Clark County Zoning Designation FR-80) and it is partially used for cattle-grazing, recreational waterfowl hunting, and timber production (Middle Lands). Improvements include a water control system located in the southern section of the Study Area, which creates a series of three small ponds managed for waterfowl habitat and duck hunting blinds (Figure 1-2), and a livestock watering system. The habitat water control system consists of a rock-fill dam, quarried from local sources, and three flashboard dams constructed over channels used to regulate the water level in the three impoundments. The downstream dam was installed in the 1960's, and the two upstream dams were installed in the 1980's. The livestock watering system consists of stock tanks supplied by a water-collecting cistern with a groundwater pump and an overfill pipe that drains into the waterfowl ponds. The livestock watering structures were installed in 1994 and renovated in 2012.

Vegetation within the floodplain areas of the Study Area consists of deciduous riparian/ floodplain forest and scrub-shrub communities with areas of seeded pasture grass mixed with forbs located through the center of the Study Area (in Long Meadow), and herbaceous emergent

communities in the lowest-lying areas. Mixed deciduous-coniferous forest and oak woodland occur within the Middle Lands.

Site wide historical aerial photographs are included in Appendix D; available aerial photos date back to 1929. At that date, the Lewis River and Gee Creek Study Area was grazed over in much of southern section and tree and shrub cover was considerably lower than it is currently. An area of open water area is apparent in the Hunter's Area in the southern section. This area would have flooded at higher elevations, for longer duration, and more frequently prior to the construction of Bonneville Dam in 1938. Additionally, the local Indian tribes used to burn the fields (and collect firewood) to maintain the lowlands as wapato (*Sagittaria latifolia*)-dominated ponded meadows and preclude the establishment of too much woody vegetation (K. Jorgensen, pers. comm., July 2015).

1.2.2 Farm Fields and Lancaster Lake Study Area

The Farm Fields and Lancaster Lake Study Area consists of portions of 4 tax parcels (tax lot # 218030000, 218005000, 217593000, and 218003000) totaling 358.14 acres in Sections 1, 2, and 12, Township 4 North, Range 1 West (Figure 1-3). The Study Area is located along the Lewis River, just upstream of its confluence with the Columbia River and encompasses floodplain areas along with the east facing lower slope of the Middle Lands. It is bounded on the north by the Lewis River, on the east by the BNSF railway embankment and rural residential development, on the south by Gee Creek and the Gee Creek – South Backwater Study Area, and on the west by the upper slopes of the Middle Lands and a forested wetland included in the Gee Creek and Lewis River Study Area. The Study Area is protected from inundation by floodwaters by levees except during extreme flood events; the levees were last overtopped in 1996. The levee to the south (located in an area referred to as The Narrows) impounds surface runoff to form Lancaster Lake; the impoundment appears to occur in a pre-existing topographical depression. A flapper valve tidegate installed at the levee regulates the water level in the lake.

Topography within the Study Area consists of nearly level floodplain that slopes very gradually (<1% grade) to the south, bounded by steep Middle Lands slopes at the western margin and railway embankment slopes at the eastern margin. Study Area elevation ranges from 8-18 feet NAVD88 within the floodplain and 18-80 feet NAVD88 along the slopes; lake bottom elevations are unknown. The Study Area is zoned FR-80 and is currently used for cattle grazing and has been extensively ditched, fenced, and historically tilled and seeded with forage grasses. Other improvements include gravel and dirt access roads and an off-channel livestock watering system. The watering system is composed of a solar-powered groundwater well with an aboveground 5,000-gallon storage tank and a pipe and tank distribution system. It was

constructed in 2012 and funded by NRCS. Recreational waterfowl hunting is also leased throughout the Study Area.

Vegetation consists primarily of seeded pasture grass mixed with forbs in the northern section of the Study Area, scrub-shrub areas in the southern section, and mixed deciduous-coniferous forest along the margins.

Historical aerial photographs of the Farm Fields and Lancaster Lake Study Area depict it as having been cleared for pasture by the time of the 1929 aerial photo, with the Narrows dike at Lancaster Lake and the railway embankment in place. Forestry and agricultural activities in adjacent areas were also underway at this time. It is likely that the levee was built when the railway was laid in the late 1800s as an access route to transport quarried basalt from the Middle Lands for railway construction. The Narrows levee was breached during the 1930s and repaired in 1947 in time to withstand the 1948 flood. The levee along Lewis River is apparent in the 1936 aerial photo, and the current configuration of drainage ditches is visible in the 1969 aerial photo.

1.2.3 Gee Creek - South Backwater Study Area

The Gee Creek - South Backwater Study Area consists of three tax lots (or portions thereof): 217797000, 217798000, and 218003000, totaling 122.25 acres in Sections 1 and 12 and DLC 37, Township 4 North, Range 1 West (Figure 1-4). The Study Area is located along Gee Creek, approximately 1.5 miles upstream of its confluence with the Columbia River, extending to the Narrows on the south side of the levee regulating Lancaster Lake, and encompassing the south-facing lower slope of the Middle Lands. It is bounded on the north by the upper slopes of the Middle Lands and the Farm Fields and Lancaster Lake Study Area, on the east by the BNSF Railway embankment and rural residential development, and on the south and west the Ridgefield National Wildlife Refuge and Gee Creek.

Topography within the Study Area consists of consists of very low-lying flats and backwaters (8 feet NAVD88 and below) studded by steep-faced basalt outcrops above 50 feet NAVD88 and bordered by the slopes of the BNSF railway embankment and the Middle Lands, which range in elevation up to 88 feet NAVD88. It is subject to frequent, long duration inundation by floodwaters from Gee Creek (and, indirectly, the Columbia River).

The Study Area is zoned FR-80 along the northern and eastern boundaries, and for mixed agriculture and wildlife habitat use (Clark County Zoning Designation AG/WL) in the southern and western sections, with a small portion designated as Parks/Wildlife Refuge (Zoning Designation P/WL). Its use is mainly for wildlife habitat, passive forms of recreation (hiking, bird watching), and waterfowl hunting.

Vegetation consists primarily of herbaceous emergent species interspersed with areas of scrub shrub, and deciduous riparian forest; upland coniferous forest and oak woodland occur along the eastern boundary and the Middle Lands.

Historical Aerials (Appendix D) depict the Study Area as having changed little since 1929, by which time the BNSF railway embankment is in place and forestry and agricultural activities are evident in adjacent areas. The Study Area is shown consistently inundated in aerials, with stable vegetation communities, indicating that post-settlement historical conditions are generally present.

1.3 Landscape Context and Ecological History

Plas Newydd Farm is located at the confluence of two major rivers in a semi-rural area within Water Resources Inventory Area (WRIA) 27: Lewis River Basin and the U.S. Environmental Protection Agency (EPA) Level IV Portland/Vancouver Basin ecoregion (Pater et al. 2010). The Portland/Vancouver Basin is a largely developed region of high terraces, floodplains, and low hills with numerous wetlands, oxbow lakes, and ponds. The marine-influenced climate is temperate and mesic, with an average of 37 to 50 inches of annual precipitation, falling mainly in the winter, and mild temperatures throughout the year. Historically, prairie and oak woodland grew in well-drained areas, while wetlands, Oregon ash, Western red cedar, Willamette Valley ponderosa pine, and Douglas fir forests occurred in moister areas. Presently, urban, suburban, and industrial development, agriculture, and forestry are primary land uses in this ecoregion.

According to the *Prospectus for the Wapato Valley Wetland Mitigation and Conservation Bank* developed for the Site by Plas Newydd, LLC (2015), the Site is located in the area that Lewis and Clark mapped and described as Wapato Valley. This area encompasses the lower Columbia River valley, including the Willamette River valley up to about modern Oregon City falls, between the Coast and Cascade mountain ranges (cited as Coues 1893 and Moulton 1983 in Plas Newydd, LLC 2015). The name Wapato Valley was given during their 1805–1806 expedition because of the dominance of wapato in the cultural and ecological landscape (cited as Deur and Turner 2005, Coues 1893, Moulton 1983 and Burroughs 1995 in Plas Newydd, LLC 2015). Portland Basin sedimentation patterns created the ideal hydrogeomorphic floodplain conditions to support vast wapato communities found in the Site. Large expanses of wapato-filled wetlands anchored Chinookan village Sites, provided food security, were used as exchange networks for trade commodity, and were used in the development of specialized tools all throughout the Portland Basin (cited as Coues 1893, Darby in Deur and Turner 2005 in Plas Newydd, LLC 2015).

The following passages from *Keeping it Living* (cited as Deur and Turner, editors, 2005 in Plas Newydd, LLC 2015) describes a vision of ecological and economic sustainability that clearly demonstrates why we have chosen the name "Wapato Valley" to identify the Site:

> "In the late eighteenth and early nineteenth centuries, Wapato Valley was an ecologically complex and productive environment that provided the region's human inhabitants with numerous types of food, with many resources (most notably salmon runs) varying considerably over time and space. The Lower Columbia region fits the model put forward by D. R. Harris (1977) of an emergent stable agricultural system, characterized by an ecosystem with high species and pattern diversity, intensive management of some resources within the ecosystem, and plant ecology that was conducive to intensification."
>
> "The Columbia River's large discharge and low gradient created extensive wetlands in the meander floodplain of its lower reaches, which were also subject to daily tidal fluctuations and annual floods. Wapato was ubiquitous in slackwater bays, freshwater tidal mudflats, on marshy islands, and in myriad ponds, lakes, and sloughs, especially on the large, marshy island named "Wapato Island" by Lewis and Clark and today called Sauvie Island."
>
> "Wapato Valley is the broad, tidally influenced freshwater zone in the Lower Columbia River Valley, beginning at the mouth of the Columbia River gorge near the Sandy River confluence, and extending westward to the Kalama River valley. The Coast Range hems Wapato Valley in on the west, and the foothills of the Cascade Mountains form its eastern boundary. The same region is known today as the Portland Basin."

1.4 Jurisdictional Authorities

Wetlands are regulated by the Corps, Ecology, and Clark County under separate jurisdictions. The Corps regulates discharge of materials to wetlands and other "Waters of the United States" under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act (Corps 2008 Regulatory Letter). The Corps authorizes actions that discharge, dredge, or fill into Waters of the United States, including wetlands, through issuance of permits. This report provides descriptions of wetlands and other Waters of the United States, and specific locations of wetland boundaries. Boundaries for rivers regulated under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act are not included in this delineation, as those regulatory limits will be addressed through the mitigation banking process.

Ecology regulates wetlands in Washington State under two separate authorities: the State Water Pollution Control Act (SWPCA) and the Shoreline Management Act (SMA). Through the SWPCA, state Water Quality Certifications are issued pursuant to Section 401 of the CWA. The SMA applies to wetlands within 200 feet of shoreline water bodies or otherwise associated with the water bodies. Ecology may also regulate wetlands through administrative orders or through water quality permits such as for short-term water quality modifications. Ecology has the authority to require permit conditions in addition to those being required by the Corps (McMillan 1998).

Clark County's Wetland Protection Ordinance is included in Chapter 40.450 of the County Code. The County reviews activities with the potential to impact wetlands or their buffers and issues permits when impacts cannot be avoided. Wetland permit applications require a wetland delineation and mitigation plan that demonstrates how wetland impacts will be effectively avoided, minimized, and mitigated. Clark County categorizes wetlands per the *Washington State Wetland Rating System for Western Washington – 2014 Update* (Hruby 2014). Wetland ratings, along with the intensity of the proposed development, are used to establish wetland buffer widths to protect the water quality, hydrological, and habitat functions of the wetland.

Other Critical Areas administered by the County are addressed under Subtitle 40.4 of the County Code and include aquifer recharge areas, hydric soils, flood and geologic hazard areas, and designated habitat areas. Along with wetlands, these Critical Areas are identified as areas which serve important ecological functions and are preserved and protected from the impacts of certain development activities or present a risk to public safety, in the case of potential flood or geologic hazards. Development or alteration in or adjacent to any Critical Area is subject to review and regulation by the County.

2 Methods

This section describes the methods used to identify the boundaries of wetlands and other waters and determine wetland area within the Site; both offsite and onsite methods were employed. In some cases, field methodology varied by Study Area due to differing hydrological and topographical characteristics. Wetlands on the Plas Newydd Farm were delineated according to methodology described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (*Regional Supplement*; Corps 2010) and the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), with some adjustments made as noted in the following sections. Specific field approaches are described by Study Area in Section 2.2.

Wetland delineation work was performed between spring 2014 and fall 2016, allowing for observation of a range of Site conditions. Wetland boundaries for the Lewis River and Gee Creek and the Farm Fields and Lancaster Lake Study Areas were established during spring-summer 2014; the Gee Creek – South Backwater Study Area was delineated in summer-fall 2015. Vegetation transects to determine upland and wetland ratios for mosaic[1] areas in the Lewis River and Gee Creek Study Area were conducted in fall 2016. Additional site visits were performed in between spring 2014 and fall 2016 to inspect delineated boundaries under a range of conditions.

For each Study Area, the presence of hydrophyte-dominated vegetation communities was correlated with hydrological data including river stage, direct observation of wetland hydrological conditions, and secondary hydrological indicators. Soils generally did not inform delineation, as relic hydric soils and basalt outcrops are common in all Study Areas.

Mapping was accomplished by identifying wetland and upland areas, and recording boundary locations using Global Positioning System (GPS) equipment. In areas where wetland, upland and/or mosaic boundaries correlated with elevations, elevation data was used to streamline

[1] Per the *Regional Supplement*, mosaics are defined as "landscapes where wetland and non-wetland components are too closely associated to be easily delineated or mapped separately; areas with a complex microtopography or repeated small changes in elevation occurring over short distances" (Corps 2010). Methods for quantifying the mosaic areas is found in Section 2.2.6.

mapping. In all Study Areas, wetland-upland boundaries were either walked and recorded or inspected along informal transects at frequent intervals to confirm correlation of vegetation, soil, and hydrologic indicators. Mapping methods are further described in Sections 2.1.5 and 2.2.

Outside of formal delineation fieldwork, inspection and informal Site visits were made after the initial delineation to observe high and low water events and seasonal changes. Topographic data was updated through supplemental LiDAR data collected during winter 2015-2016; additional inspections and adjustments occurred during spring 2016 to assure the accuracy of wetland boundary polygons where topographic data changes occurred.

2.1 Preliminary Data Collection

Prior to conducting fieldwork, ecologists reviewed the following available data and information:

- LiDAR data of the Site acquired by GeoTerra, Inc. in February 2016 and products generated from this dataset including aerial imagery
- National Oceanic and Atmospheric Administration (NOAA) Online Weather Data (NOWData) for Vancouver, Washington and Portland, Oregon
- Columbia River stage data from the U.S. Geological Survey (USGS) Vancouver, Washington station (#14144700)
- National Resource Conservation Service (NRCS) Soil Survey of Clark County, Washington
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI)
- Washington Department of Natural Resources (WDNR) hydrography data
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) data
- Wetland Protection Ordinance for Clark County (Chapter 40.450)
- Clark County Geographic Information System Database (CCGIS)
    - Clark County Local Wetland Inventory (LWI)
    - Zoning Designation
    - Comprehensive Plan Designation
    - Critical Areas mapping datasets

2.1.1 Precipitation Data and Analysis

Precipitation data for, and prior to, the dates of formal wetland delineation fieldwork were reviewed to evaluate observed wetland hydrology conditions relative to statistically normal precipitation. Precipitation that deviates from normal ranges can affect observed wetland hydrology indicators. Precipitation data were acquired from local weather stations for the Study

Area during the time of fieldwork (NOAA 2014). Fieldwork was conducted between the dates of April 23 and July 18, 2014 in the Lewis River and Gee Creek Study Area, between the dates of May 28 and August 6, 2014 in the Farm Fields and Lancaster Lake Study Area, and between the dates of August 31 and November 18, 2015 for the Gee Creek – South Backwater Study Area. Precipitation data associated with these four dates is presented for analysis as representative of weather conditions throughout the period of investigation. Table 2.1 provides precipitation data for the date of the field visits, precipitation for the two weeks prior to the field visits, and a comparison to the normal water year average.

Table 2.1. Precipitation Summary for Recent Period Preceding Site Visits

		Recorded Precipitation (inches)				
Study Area	**Date of Field Visit**	**Date of Visit**	**Two Weeks to Date**	**Water Year to Date**	**Normal Water Year to Date**	**Percent of Normal Water Year to Date**
Lewis River and Gee Creek	04/23/2014	0.37[a]	1.34[a]	22.92[a]	33.30[a]	69%
	07/18/2014	0.00[b]	0.01[b]	28.69[b]	39.07[a]	73%
Farm Fields and Lancaster Lake	05/28/2014	0.02[a]	0.93[a]	26.13[a]	36.43	72%
	08/06/2014	0.00[b]	0.04[b]	29.33[b]	39.37	75%
Gee Creek - South Backwater	8/31/2015	0.00[b]	0.54[b]	30.07[b]	40.02[b]	75%
	11/18/2015	0.25[b]	3.05[b]	6.93[b]	7.09[b]	98%

[a] Data provided by NOWData, Vancouver 4 NNE, Washington, 2014; [b] Data provided by NOWData, Portland International Airport, Oregon, 2014-2015.

Table 2.2 provides monthly precipitation totals for 3 months preceding the first and last Site visits and compares these values to normal monthly precipitation. Also included in the table are the normal monthly ranges of precipitation representing 70% probability as reported in the NRCS WETS table for the area. WETS tables were developed specifically for application to wetland science using climate data from the National Weather Service Cooperative Network for the purpose of defining a normal range for monthly precipitation and growing seasons required to assess the climatic characteristics for a geographic area over a representative time period (NRCS 2002).

Table 2.2. Precipitation Summary for 3 Months Preceding Site Visits

Month	Total Precipitation (inches) [a]	Normal Value for Month (inches) [b]	Percentage of Normal Precipitation	WETS Normal Range of Precipitation [c]
2014				
July	0.65	0.69	94%	0.37–1.24
June	2.31	1.91	121%	1.59–2.93
May	2.33	2.71	86%	2.02–3.88
April	3.60	3.20	113%	3.16–5.03
March	6.21	4.21	148%	4.31–6.30
February	5.56	4.35	128%	4.30–7.07
January	2.79	5.92	47%	4.42-8.33
2015				
October	3.69	3.38	109%	2.17-4.90
September	1.26	1.61	78%	1.10-3.06
August	0.66	0.74	89%	0.45-1.42
July	0.57	0.69	83%	0.37–1.24
June	0.40	1.91	21%	1.59–2.93

[a] Data provided by NOAA NOWData Portland International Airport, Oregon, 2014-2015; [b] normal date range: 1981–2010; [c] NRCS WETS table for Station ID WA0482 in Battle Ground, Washington, 1971–2000.

Lewis River and Gee Creek Study Area Analysis

In the months preceding the first field visit on April 23, 2014, observed precipitation levels rapidly increased from well below normal to well above normal. Precipitation occurred at 47% in January, 128% of normal in February, and 148% of normal in March. In the two weeks preceding the field visit, precipitation was recorded at 1.34 inches, resulting in a total for the water year to date (beginning October 1, 2013) at 22.92 inches (69% of normal). The final field visit occurred on July 18, 2014. Precipitation in the months prior was observed at slightly below normal in May (86% of normal) and above normal in June (121% of normal). In the two weeks preceding the field visit, 0.01 inches of rainfall was observed, resulting in a total for the water year to the date of the final field visit at 28.69 inches (73% of normal).

Farm Fields and Lancaster Lake Study Area Analysis

In the time period preceding the first field visit on May 28, 2014, above normal to near-normal precipitation levels were observed as described above. In the two weeks preceding the field visit, precipitation was recorded at 0.93 inches, resulting in a total for the water year to date at 26.13 inches (72% of normal). Prior to the final field visit on August 6, 2014, precipitation was observed at above normal to near-normal levels (121% of normal for June; 94% of normal for July). In the two weeks preceding the field visit, 0.04 inches of rainfall was observed resulting in a total for the water year to the date of the final field visit at 39.37 inches (75% of normal).

Gee Creek - South Backwater Study Area Analysis

In the months preceding the first field visit on August 31, 2015, conditions were very dry to slightly below normal: precipitation occurred at 21% of normal in June, 83% of normal in July, and 89% of normal in August. In the two weeks preceding the first field visit, precipitation was recorded at 0.54 inches, resulting in a total for the water year to date (beginning October 1, 2014) at 30.07 inches (75% of normal). The final field visit occurred on November 18, 2015. Precipitation in the months prior was observed at 109% in October and 78% in September. In the two weeks preceding the final field visit, 3.95 inches of rainfall was observed, resulting in a total for the water year to the date (beginning October 1, 2015) at 6.93 inches (98% of normal).

Precipitation Analysis Conclusion

For Lewis River and Gee Creek and Farm Fields and Lancaster Lake Study Areas, variable precipitation levels observed within a slightly-below-normal 2013-2014 water year indicate that conditions observed during delineation fieldwork represented typical to somewhat dry hydrological conditions for the early-to-mid growing season based on precipitation. For the Gee Creek - South Backwater Study Area, a dry summer and seasonable fall precipitation indicate that conditions observed during fieldwork also represented typical to somewhat dry conditions for the late growing season of the 2014-2015 and early 2015-2016 water years. River stage during fieldwork, which is also a primary factor affecting observed wetland hydrological condition within the Site, is evaluated in Section 2.1.6.

2.1.2 Wetland Inventory Data and Aquatic Critical Areas

Wetland Inventory and other aquatic Critical Areas occur throughout all three Study Areas. These areas are depicted in the Lewis River and Gee Creek Study Area on Figure 2-1, in the Farm Fields and Lancaster Lake Study Area on Figure 2-2, and in the Gee Creek - South Backwater Study Area on Figure 2-3. NWI wetlands include riverine, lacustrine, and palustrine emergent,

scrub-shrub, and forested classes (USFWS 2014). Clark County also includes these wetlands in their LWI dataset.

The WDNR designates the Lewis River (and associated slough located in the Lewis River and Gee Creek Study Area), Columbia River, and Gee Creek, as Type S: Shorelines of the State (WDNR 2015). Lancaster Lake is identified as "likely to qualify" as a Shoreline of the State according to the Ecology SMP Handbook (Ecology 2012). The extent of Shorelines of the State determined by Mean High Water (8.8 feet NAVD88), which establishes the Site property boundary along these waterways in typical cases. However, the Plas Newydd Farm property boundary, as it pertains to shorelines, is defined at the "line of ordinary high water (=mean high tide) and continues to follow the ambulatory line" (Steve Ivey, WADNR, pers. comm., September2015) because ownership predates statehood.

Designated Aquatic Lands that are considered of statewide significance and are subject to SMA Jurisdiction (McMillan 1998); they are managed by WDNR. Additionally, Clark County designates a 200-foot buffer area for Type S waters extending from the Ordinary High Water Mark (OHWM) and encompassing associated floodways and 100-year floodplains, which represents potential shoreline management review permit areas.

Finally, Clark County data depicts the Study Areas as entirely within a flood hazard area with the exception of the portions of the Middle Lands included within the Study Areas. This dataset includes Federal Emergency Management Agency (FEMA) floodplain data as well as new, detailed hydrological studies.

2.1.3 Non-Aquatic Critical Areas

Habitat conservation areas and other non-aquatic County-designated Critical Areas are depicted in the Lewis River and Gee Creek Study Area on Figure 2-4, in the Farm Fields and Lancaster Lake Study Area on Figure 2-5, and in the Gee Creek - South Backwater Study Area on Figure 2-6. Habitat conservation Critical Areas are described in detail in the following sections. Presence of these Critical Areas within and surrounding the Study Area may trigger additional development reviews by the County.

Habitat Conservation

The Lewis and Columbia Rivers and Gee Creek are designated by Clark County and the WDNR as within the known range for chum salmon, coho salmon, spring and fall Chinook salmon, and summer and winter steelhead. A County-designated Riparian Habitat Conservation Area (HCA) is associated with all streams. The Riparian HCA is based on a standard buffer width applied to streams based on their DNR typing or the extent of the 100-year floodplain, whichever is greater

(Section40.440.10[C]). The standard buffer applied to Type S streams is 250 feet. In addition, Riparian HCAs are associated with an additional 100-foot buffer to protect their values and functions. As the Site is composed primarily of floodplain, Riparian HCA covers most of each Study Area.

Non-Riparian HCAs and Species Areas are also mapped throughout the Site. Non-Riparian HCAs and Species Areas are based on WDFW PHS data as well as locally important habitats and species areas mapped by the County (Clark County 2013). Species Areas are designated for areas within 1,000 feet of individual species point sites. According to PHS data, the Site includes concentrations of wintering waterfowl including Canada geese (*Branta canadensis*), sandhill cranes (*Grus Canadensis*), tundra swans (*Cygnus columbianus*), white-fronted geese (*Anser albifrons*), and dabbling ducks (*Anas spp.*; WDFW 2014). The data also indicate the presence of bald eagles (*Haliaeetus leucocephalus*), which are state listed as Sensitive and federally listed as a Species of Concern. Finally, Clark County data depict 300-foot Species Area Buffers and 100-foot Habitat Area Buffers associated with Species and Non-Riparian HCAs

Other Critical Areas

Other Critical Areas are included in the County GIS data but not shown on the Figures 2-1 through 2-6. The County designates the Site and surrounding area as a Category II Aquifer Recharge Area, as affected by Critical Clearing Ordinance, and as having a high probability (80–100%) for archeological significance (Clark County 2013). Aquifer Recharge Areas are areas considered critical to the quality and quantity of groundwater which may be used for future drinking water or business purposes within a 10-year time period (Chapter 40.440.010[C] [2] of the County Code). This designation requires permit conditions for certain development activities that may degrade the quality of groundwater. Potential for archeological artifacts may also require permit conditions for activities that involve soil disturbance.

2.1.4 USDA/NRCS Soil Survey Maps

Soil survey data for the Site was obtained from the Web Soil Survey (Soil Survey Staff, NRCS). In the Lewis River and Gee Creek Study Area, three soil series are mapped: Sauvie, Pilchuck, and Olympic (Figure 2-7); the Farm Fields and Lancaster Lake Study Area includes four soil series: Sauvie, Sara, Washougal, and Olympic (Figure 2-8); and the Gee Creek - South Backwater Study Area includes two: Sauvie and Olympic (Figure 2-9).

Three soil variants (or map units) of the Sauvie series occur over the majority of all of the Study Areas. The Sauvie series was formed mainly in alluvium and occurs on floodplains at elevations of 10-20 feet. Sauvie silt loam with slopes of 0-3% generally occurs in pasture areas within the

center of the Lewis River and Gee Creek Study Area and in the northern end of the Farm Fields and Lancaster Lake Study Area. This variant is moderately well-drained and not prone to flooding or ponding. It is rated as completely non-hydric (no map units rated as hydric). Sauvie silt loam with a sandy substratum and slopes of 0-3% generally occurs over the forested areas along the Lewis River in The Lewis River and Gee Creek Study Area and portions of the northern section of the Farm fields and Lancaster Lake Study Area. This variant is somewhat poorly drained and prone to frequent flooding. It is rated as completely hydric (100% of map units rated as hydric). Sauvie silty clay loam with slopes of 0-8% occurs over low-lying areas in the southern section of the Lewis River and Gee Creek Study Area, over the majority of the Farm Fields and Lancaster Lake Study Area, and over small low-lying portions in the central section of the Gee Creek - South Backwater Study Area. This variant is somewhat poorly drained and not prone to flooding or ponding. It is rated as completely non-hydric.

A shallow variant of Olympic very stony clay loam is associated with basalt outcrop and occurs over small upland areas along the southern and eastern boundaries of the Lewis River and Gee Creek Study Area, along the western boundary of the Farm Fields and Lancaster Lake Study Area, and throughout most of the Gee Creek - South Backwater Study Area. This is a well-drained soil formed in residuum and colluvium weathered from basic igneous rock, occurring on summits of foothills and mountains with elevations of 200-2,000 feet and slopes of 5-15%. It is not prone to flooding or ponding and is rated non-hydric.

Pilchuck fine sand occurs along the Lewis River shoreline in the Lewis River and Gee Creek Study Area. The Pilchuck series consists of very deep, somewhat excessively drained soils that formed in gravelly and sandy alluvium on floodplains at elevations of 10-800 feet and slopes of 0-8%. Pilchuck fine sand is prone to occasional flooding and is rated as non-hydric.

Sara silt loam at slopes of 8-20% occurs along the northeastern boundary of the Farm Fields and Lancaster Lake Study Area. The Sara series consists of very deep, moderately well drained soils formed in old alluvium on river terraces and terrace escarpments at elevations of 250-450 feet. It is rated as non-hydric and is not prone to flooding or ponding.

Washougal stony loam at slopes of 30-60% occurs along the southeastern boundary of the Farm Fields and Lancaster Lake Study Area. This soil series consists of very deep, somewhat excessively drained soils that formed in alluvium from volcanic ash, basalt, and andesite and occurs on river terraces and terrace escarpments at elevations of 50-800 feet. Washougal stony loam is rated non-hydric and is not prone to flooding or ponding.

Gee silt loam occurs at slopes of 8-20% along the BNSF railway just beyond the western boundary of the Gee Creek – South Backwater Study Area, possibly extending into it based on the

soil mapping margin of error. Gee silt loam consists of deep, moderately drained soils formed in old alluvium on dissected high terraces and terrace escarpments at elevations of 150-300 feet. It is rated non-hydric and is prone to neither flooding nor ponding.

2.1.5 Topographical Data

Topographical data were used along with field delineation methods throughout the Site to establish upland, wetland, and/or mosaic boundaries. Boundaries were recorded along informal transects during fieldwork and compared against topographic data to establish elevation ranges for uplands, wetlands and mosaic areas in the Site. LiDAR data for the Site was acquired by GeoTerra, Inc. in February 2016 and used to produce a raster-based digital elevation model with a 3-foot resolution and elevation contour lines at 1-foot and 0.5-foot intervals (shown on Figures 1-2 through 1-4). Ground-surveyed topographical data, provided by the client, were also available for limited portions of the Site.

Statistical analysis performed on the LiDAR dataset yielded a vertical error of ±1.4 inches (GeoTerra 2016) for the Site overall; however, in areas of dense tree canopy and ground cover, the accuracy of LiDAR data can be compromised. LiDAR data in densely vegetated areas were augmented with the ground-surveyed topographic data to aid in mapping wetland and upland boundaries.

LiDAR-derived elevation data is used exclusively in all topographic maps provided in this report as the ground-surveyed topographic data sets do not cover the entire Study Area. All topographic data was provided by Plas Newydd Farm.

2.1.6 Hydrological Data

The 1987 Corps Manual guidance in determining whether wetland hydrologic criteria are met states that soils should be continuously inundated or saturated to the surface for at least 5-12.5% of the growing season in 5 years out of 10 (Environmental Laboratory 1987). According to the WETS table, the growing season for the Vancouver region in Washington, with temperatures at or above 28^0F, spans from March 17 to November 4 (233 days) in 5 out of 10 years (NRCS 2002).

Wetland hydrology indicator criteria can be met with direct observation of surface water or saturation (Group A), observation of evidence of flooding, ponding, or saturation (Group B and C), or observation of landscape features that indicate current rather than historic hydrology (Group D). Within these categories are sub-categories of primary and secondary indicators based on the reliability of the observation. For wetlands that do not exhibit reliable field wetland hydrology indicators (one primary indicator or two secondary indicators), other evidence of

wetland hydrology may be used with appropriate documentation (*Regional Supplement*, pages 66 and 69; Corps 2010).

Wetland hydrology within the Site is largely driven by the hydraulics of the Lewis and Columbia rivers causing dramatic groundwater fluctuation as well as overbank flooding. These major rivers, along with Gee Creek, surround the Site and control the water table through hyporheic exchange and surface water flooding. The Columbia River maintains high water surface stages from prolonged periods of high flows (days or weeks), which is sufficient to affect wetland hydrologic conditions. During high flow events, Columbia River flow backwaters into both the Lewis River and Gee Creek, establishing long-standing surface water conditions within and surrounding the Site. The rivers are tidal and dam-regulated, resulting in both seasonal and diurnal river fluctuations and inordinately high water during the early-mid growing season when excess water generated from spring snowmelt is released from the Bonneville Dam located upstream from the Site on the Columbia River.

River Stage Data

All Study Areas are affected by river stage; the Lewis River and Gee Creek and Gee Creek – South Backwater Study Areas are directly affected by surface flows from the adjacent rivers; the Farm Fields and Lancaster Lake Study Area is affected by hyporheic exchange, where river levels are expected to correlate to groundwater elevations. Gage data was used with field delineation methods to determine if wetland hydrology was present on potential wetlands. For wetlands that periodically do not exhibit wetland hydrology indicators due to disturbance, drought, or other hydrologic manipulations, it is acceptable to use gage data to determine whether wetland hydrology is present on a potential wetland site (*Regional Supplement*, page 120; Corps 2010). For these Study Areas, river stage data was reviewed to assess groundwater saturation through hyporheic exchange and surface flooding, as indicators of wetland hydrology. River stage varies greatly in timing and elevation, requiring a review of gage data to interpret field observations in an appropriate context. River stage data was not considered to determine a regulatory OHWM for Waters of the United States; OHWM will be determined in consultation with the Corps and Ecology during the mitigation and conservation bank regulatory process.

To determine the rivers' effects on wetland hydrology at the Site, stage data were obtained for the Columbia River from the USGS Vancouver, Washington, gage #14144700 for the period between 1998 and 2013 to represent peak and average water surface elevations that influence wetland hydrology within the Site. This gage is approximately 19.5 river miles upstream of the Site. It was used in lieu of the closer St. Helens gage (located across the Columbia River from the Site) due to large errors observed in the St. Helens dataset (stage height values ranged from -100

to 100 feet) and no available quality assurance ratings. Data from the Vancouver gage was calibrated using standard Corps of Engineers conversions (see following paragraph). Hydrological information was used to support field observations of wetland hydrology and aid in determining upland/wetland boundaries.

Daily mean stage height data for the 15-year time period (1998 to 2013) were analyzed and compared to daily mean stage height data during the high water periods of the growing season and when field work was conducted (April to July 2014). Peak annual stage height data were analyzed according to methods outlined in *Determining the Ordinary High Water Mark on Streams in Washington State* (Olson and Stockdale 2010) to determine water surface elevations that correspond to various flood return intervals. To account for the difference in water surface elevations between the Columbia River at Vancouver and the river adjacent to the Site, *Flood Profiles of Columbia River and Tributaries*, produced by the Corps (revised March 1968), was referenced per direction of the Corps Survey Office (Michael Littel, pers. comm. (email with Brent Haddaway), July 29, 2014). This document provides flood elevation values for the Columbia River from Bonneville Dam to the outer end of the jetties at the mouth of the river. According to the document, there is a 3-foot relative elevation difference between the gage at Vancouver and the gage at St. Helens. Stage height and water surface elevation data adjusted by a factor of -3.0 feet are presented in Figure 2-10 and Table 2-3.

The hydrograph in Figure 2-10 depicts the result of river stage height analysis during the spring freshet portion of the growing season; however, year-round data were considered in analysis. The adjusted 1.01-year peak stage height (corresponding to a 99.9% recurrence interval) was calculated at 11.91 feet NAVD88, and the adjusted 2-year peak stage height (corresponding to a 50% recurrence interval) was calculated at 15.41 feet NAVD88. These two values represent the upper and lower limits of the river stage height that correspond with high flows during the growing season. Methods were borrowed from *Determining the Ordinary High Water Mark on Streams in Washington State* (Olson and Stockdale 2010) to assess river stage that would affect wetland hydrology. Olson and Stockdale (2010) indicate that the elevation corresponding to the 60% recurrence interval (1.6-year) should be used as the upper limit when the range between 1.01-year and 2-year peak stage height is large and that ordinary high water stage height in Washington State should both occur at a 60% recurrence interval and be sustained for 3 to 7 consecutive days. The adjusted 1.6-year peak stage height was calculated at 14.95 feet NAVD88. Visual estimation of the 14.95-foot stage height plotted on a graph of daily mean stage height for the entire 15-year time period indicates that the 14.95 elevation value reasonably fits the criteria of ordinary high water.

Table 2.3 presents selected water surface elevations corresponding with water flood return intervals that are related to wetland hydrology.

Table 2.3. Selected Flood Return Intervals and Corresponding Adjusted Water Surface Elevations for the Lewis River and Gee Creek Study Area

Flood Return Interval	Water Surface Elevation (ft. NAVD88)[a]
2-Year	15.41
1.01-Year	11.91

[a] Calculated by applying a correction factor of -3 feet derived from flood profiles developed by the Corps (Corps 1968) to data obtained from USGS Columbia River stream gage #14144700 at Vancouver, WA.

2.2 Field Methods

Formal data plots were established at locations representative of general field conditions (i.e., representative vegetation units or communities), and paired plots were also established to determine the location of upland/wetland boundaries. Plot locations were recorded using a GPS in the field to identify the location and elevation of the wetland and upland boundaries. Wetland, upland, and mosaic boundaries were mapped using topographic elevations (contour lines) in between sample locations where elevation and upland-wetland (or mosaic) conditions correlate. The delineation approach was modified as appropriate for conditions characteristic of each Study Area; methods specific to each Study Area are described at the end of this section. All identified wetlands were classified according to the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) and assessed using the *Washington State Wetland Rating System for Western Washington – 2014 Update* (Hruby 2014).

All delineation work was performed by three staff of Cascade Environmental Group, with support provided by the Plas Newydd Conservation Program. Decisions related to method variations, timing of fieldwork, or specific locations of delineation boundaries were made by the report author. Plas Newydd Farm was consulted regularly to compare delineation findings with the land owner's experience and with data being collected to inform Site design. Plas Newydd Conservation Program staff assisted with delineation fieldwork on occasion, to support GPS data collection, soil augering, and other similar assistance.

In all three Study Areas, wetlands were delineated based on correlating the presence of hydrophytic vegetation, hydric soils, and indications of wetland hydrologic conditions. Topographic data was used to support mapping of wetland, upland, and mosaic polygons after

boundaries were established by either traversing the boundary and recording location data, or by intersecting the vegetation community boundary at regular intervals and recording the community locations along informal transects. Topographic data proved to be an effective mapping tool because wetland and upland indicators occurred at similar elevations consistently, and because the Site is large and vegetation communities are highly interspersed in areas.

Streams and OHWM were not delineated; the boundaries of Waters of the U.S. will be determined through the mitigation and conservation bank regulatory process. Flow period status (e.g., seasonal or perennial) of streams was estimated based on field observations and supporting data including DNR stream typing, historical photos, and existing reports and data. Ditches located within all Study Areas were vegetated and failed to exhibit clear beds and banks, likely due to flat gradients; all ditches were delineated as features within larger wetlands and not delineated as Waters of the U.S.

Ground level color photographs were also taken throughout each Study Area to convey on-the-ground conditions (Appendix C).

In formal data plots, data were collected on vegetation, soil, and hydrology per Corps protocol, described as follows.

2.2.1 Vegetation

Under normal conditions, hydrophytic vegetation is considered prevalent if greater than 50% of the dominant species from each vegetative stratum (tree, shrub, vine, and herbaceous) are assigned a wetland indicator status of obligate (OBL), facultative wetland (FACW), or facultative (FAC) according to the USFWS publication *National Wetland Plant List* (Lichvar 2012). Wetland indicator statuses are defined in Table 2-4 below.

Dominant species were determined by using the "50/20 rule," wherein dominants are the most abundant species that individually or collectively account for more than 50% of the total (absolute) coverage of vegetation in the stratum, plus any other species that by itself accounts for at least 20% of the total (Environmental Laboratory 1987; Corps 2010). Vegetation was sampled within 5-foot radius circular plots for herbaceous and shrub species and 30-foot radius circular plots for tree species. All plant species encountered are listed on the data forms to provide a full picture of the vegetation community; trees and shrubs are excluded from the sample plot if they are not representative of plot conditions due to changes in slope or topographic breaks (Appendix A).

Table 2.4. Wetland Indicator Status Definitions

Category	Definition
Obligate	Species is nearly always a hydrophyte; rarely found in uplands.
Facultative Wetland	Species is usually a hydrophyte; occasionally found in uplands.
Facultative	Species commonly occurs in both wetlands and uplands.
Facultative Upland (FACU)	Species occasionally occurs in wetlands but usually occurs in uplands.
Upland (UPL)	Species nearly always occur in uplands; rarely occurs in wetlands.

Source: Lichvar 2012

Vegetation Community Mapping

Vegetation community mapping was performed throughout the Site to provide greater overall detail on Site vegetation and inform project development. Mapping methodology was based on a qualitative and narrative-based "rapid assessment" characterization and involved sketching vegetation community polygons over aerial and topographical maps, then verifying community extents and composition in the field. Communities were defined by the dominant species in each vegetation stratum as well as their Coward classification.

2.2.2 Soil

Ecologists excavated soil sample pits to a depth of at least 16 inches (when possible) to determine whether soils at the sample location met hydric soil criteria as described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Corps 2010). Soil colors were determined using a Munsell Soil Color Chart (Gretag Macbeth 2000). Hydric soils are soils that formed under conditions of saturation, flooding, or ponding for sufficient duration to develop anaerobic conditions in the upper layers (Environmental Laboratory 1987; Corps 2010).

Although Plas Newydd Farm leases pasture land for cattle grazing, no indicators of significant soil compaction were observed at the Site other than roads. Ecologists encountered no difficulties when digging soil pits, and saw no evidence that soil layers near the surface perched water. Plas Newydd Farm manages cattle operations to minimize overall impacts, including frequent rotation of grazing fields. The generally sandy substrate and frequent surface water inundation also likely minimize the effects of cattle grazing on soil compaction.

2.2.3 Hydrology

Wetland hydrology indicators are used along with indicators of hydric soils and hydrophytic vegetation to determine whether an area is a wetland. Primary indicators of wetland hydrology include inundation (i.e., standing water), saturation in the upper 12 inches of the soil column, high water table, water marks or lines on adjacent stationary objects (e.g., trees), sediment deposits or drift lines on vegetation, oxidized rhizospheres along living roots, and water-stained leaves. Two or more secondary indicators from the following list can also be used to identify wetland hydrology: surface drainage patterns, dry-season water table, shallow aquitard, saturation visible on aerial photography, FAC-neutral test, geomorphic position, or frost-heave hummocks (Environmental Laboratory 1987; Corps 2010).

Groundwater observations were also considered in context of adjacent river stage because of the anticipated (and later, observed) correlation. A study performed to assess restoration feasibility on nearby Lake Rosannah (upstream on the Lewis River) concluded groundwater levels on that property were hyporheic in nature based on comparisons of groundwater monitoring wells and river stage correlation (Interfluve 2013). The Site's location surrounded by large rivers, the coarse texture of the soils observed, and the lack of other significant hydrological inputs suggested the Study Areas presented in this report would have similar, hyporheic driven groundwater conditions. Observations of soil saturation during fieldwork also corresponded with this hypothesis; groundwater was observed in soil pits when river stage reached similar elevations as soil pit elevations. Therefore, direct observation of soil saturation elevations were viewed in the context of river stage, rather than from only precipitation or seasonality.

The Site's floodplain location and hyporheic influence established elevations where river stage data indicated regular groundwater or surface water inundation, As described in Section 2.1.6 , river stage data was collected and used to inform wetland delineation when indicators of wetland hydrology were not observed.

2.2.4 Wetland Ratings and Buffers

Wetlands were assessed for functions using the *Washington State Wetland Rating System for Western Washington – 2014 Update* (Hruby 2014). Wetland rating units include contiguous offsite portions, estimated per methods described in the rating system manual. Appendix B contains the standard wetland rating forms. Wetlands are rated to determine appropriate mitigation ratios and buffer widths. Each wetland is rated based on its significance, sensitivity to disturbance, the difficulty involved in restoring it, and by the assessed level of functions it provides, and assigned a category from I to IV. The categorical assignment of each wetland is based on three major groups of functions that wetlands perform: water quality, hydrological,

and wildlife habitat. Each group is divided into "site potential," "landscape potential," and "value" sections that are scored as "high," "medium," or "low." The scores for each group of functions are summed to produce the overall rating for the wetland. Wetlands are also assessed for qualities that meet criteria defined by the rating system for estuaries, bogs, natural heritage sites, mature forested wetlands, coastal lagoons, or interdunal wetlands (i.e. "special characteristics"). Wetlands with "special characteristics" are rated according to a separate set of criteria, which supersedes the rating result of the functional assessment (refer to the wetland rating forms in Appendix B).

Wetland buffers were determined using Clark County Ordinance No. 2006-05-027 (Chapter 40.450). Buffer widths are determined using a combination of wetland rating results and the land use intensity of the proposed project.

2.2.5 Mapping

Wetland data points and key boundary locations on the Site were recorded using TerraSync software on a Trimble GeoXT GPS unit with sub-meter positional accuracy capability. GPS data were post-processed, resulting in an estimated average positional accuracy of 1 to 3 feet, and exported to a GIS format (ESRI shapefile). Elevation values for each data plot were extracted using the raster-based topographic surface derived from LiDAR data to determine an actual elevation contour and corresponded to upland/wetland boundaries. Contour lines generated from the topographic surface were used to create boundary polygons in between field-recorded boundary locations. To create wetland buffers, ArcGIS Desktop 10.1 buffer functions were applied to wetland boundary lines using the appropriate distance based on the wetland rating result.

2.2.5.1 Use of Topographic Data in Delineation Mapping

Wetland delineation boundaries were determined based on field indicators; ecologists either walked the wetland-upland boundary and recorded its location, or sampled along informal transects that were generally aligned perpendicular to topographic breaks and community boundaries. Topographic data (contour lines) were used to "fill in" gaps between data collection points or informal transects when wetland, upland, and mosaic conditions strongly correlated to elevations (*1987 Delineation Manual*, Part IV, pages 72-73; Environmental Laboratory 1987). This was used in areas where there was no significant elevation change and the wetland boundary was field verified to make sure no anomalies exist per the 1987 Manual methods. These topographic data were used because of the Site's large size, the high degree of interspersion of wetland and upland communities, and that elevation and delineation boundary

indicators were strongly correlated in each Study Area. Specific applications of topographic data are described in the following sections.

2.2.6 Lewis River and Gee Creek Study Area Methods

Formal wetland delineation data collection for the Lewis River and Gee Creek Study Area was performed on April 23, May 1, May 12, May 22, June 19, and July 18, 2014; additional field visits were made during other times of year to review the initial data under varying conditions. During these visits, informal transects were established perpendicular to the elevation gradient of the recurring scroll bar and swale features of the Study Area. Ecologists walked the transects, identifying locations and elevations of the wetland and upland transitions, and recording the boundary with GPS. Sample plots were recorded at wetland-upland boundaries and in representative areas to document wetland and upland communities (*1987 Delineation Manual*, Part IV pages 61-73; Environmental Laboratory 1987)

Wetland areas were identified where hydrophytic vegetation were dominant and where primary and/or secondary wetland hydrology indicators could be observed, including consideration of river stage gage data where observable indicators were lacking. Upland conditions were identified in areas lacking hydrophytic vegetation and indicators of wetland hydrology; hydric soil indicators were generally considered unreliable due to regional, manmade changes to the hydrology (e.g. upstream damming), poor correlation to current vegetation communities, and presence of recent alluvial deposits (entisols).

Elevation data collected and plotted in Excel showed strong correlations of wetland conditions in elevations below 15.5 feet NAVD88, and upland conditions at elevations above 17 feet NAVD88; highly interspersed vegetation communities occurred between those elevations. Plot data recorded between those elevation ranges were inconsistent; wetland-upland boundaries changed frequently or were difficult to discern. Based on these findings, methods were adopted to include a wetland-upland mosaic polygon to address the interspersed vegetation communities where the wetland and non-wetland characteristics are too similar to accurately distinguish between the two (*Regional Supplement*, page 124; Corps 2010). Riparian areas, such as those present within the Lewis River and Gee Creek Study Area, are highly variable ecosystems and commonly feature “problematic” hydrophytic vegetation (*Regional Supplement*, page 102; Corps 2010) and hydrology that requires use of supporting ancillary data and secondary characteristics for proper delineation.

2.2.6.1 Mosaic Areas

In these locations where wetland and upland habitats were highly interspersed, wetland-upland "mosaic" polygons were established; generally occurring within 15.5 and 17 feet, NAVD 88. The vegetation communities occurring within this elevation range were reviewed in the field and ecologists attempted to identify characteristics that could be used to consistently delineate wetland and upland polygons; the area was determined to be best delineated as a wetland-upland mosaic for the following reasons:

- All observed soil pits included hydric soil indicators; as stated above, Columbia River flows have been greatly altered by upriver damming, which suggests soil indicators may be relic.
- Vegetation communities were dominated by species that are ubiquitous to the lower Columbia River floodplain that occur in both upland riparian and wetland areas. The vegetation composition shifts without clear patterns; local site conditions (i.e., elevation and landform) did not create distinct vegetation communities within this elevation range.
- All species are common floodplain species, tolerant of periodic inundation. The variable hydrologic conditions in the Columbia River floodplain create periods of inundation interrupted by periods (sometimes multiple years), where prolonged inundation does not occur.
- According to river gage data analyzed as described in previous sections, all areas within this elevation range likely experienced shallow soil saturation in 3-6 years out of 10. Local conditions, such as variations in soil composition and topography could also affect soil saturation duration. Vegetation communities within the 15.5-17 foot elevation range may or may not meet wetland hydrology criteria.
- Mapping of specific wetland or upland polygons could not be supported given the ambiguity of the indicators. Within the mapped mosaic polygon, distinct wetland or upland conditions could be observed over small areas (<1,000 sq feet), but those vegetation communities occur as isolated pockets within larger communities where wetland and upland boundaries cannot be identified and supported based on consistent rationale.

Once the decision was made to delineate a portion of the Study Area as wetland-upland mosaic, ecologists took efforts to estimate proportions (percentages) of wetland to upland within the larger mosaic polygon. Two methods were employed to estimate wetland-upland percentages in

mosaic polygons: informal transects and completing five transects using the "point intercept method" described in *Regional Supplement* to delineate wetland-upland mosaic areas (*Regional Supplement*, page 124; Corps 2010). For informal transects, ecologists walked across mapped mosaic areas and sections of wetland and upland areas were tallied individually. Following each mosaic informal transect;

- Ecologists would compare results and discuss the basis for determining wetland and upland vegetation communities.
- Areas with indistinct conditions were addressed using Best Professional Judgment, including allowing the sampler to split sampled between wetland and upland areas mathematically, rather than identifying distinct boundary locations.
- Estimates were averaged and recorded; results were consistent values across samples.
- Upon averaging of samples, an overall wetland-mosaic ratio was determined as 60% wetland and 40% upland.

Five formal transects were also located in mosaic areas, situated in varying circumstances: between wetland areas on both sides, occurring between upland and wetland vegetation communities, and between two upland communities. The location of the transects were established to address a range of conditions where mosaic polygons had been established, to provide representative sampling. Two emergent and three forested community transects were completed. Point intercept sampling was completed at regular intervals along transects (approximately every 10 feet for the emergent and every 115 feet for the forested) and sampled to determine whether wetland or upland conditions were present at the sample location; the number of plots meeting each criteria were tallied to determine the ratio of wetland and upland area within the mosaic. Representative delineation data plots were established for both upland and wetland conditions in the emergent and forested vegetation communities. Data collected for mosaic sampling transects is provided in Appendix A.

2.2.6.1.1 Problem Area Wetlands

Portions of the Study Area occurring along the shoreline of the Lewis River are underlain by coarse, sandy soils. Hydric soil indicators were less commonly observed in exploratory soil pits and formal data plots in these areas, a characteristic common to vegetated bars with coarse-textured soils occurring above the active channel of streams. This "Vegetated Sand" constitutes a problematic soil for wetland delineation as the deposition of new soil material, low iron content, and low organic-matter content can result in a lack of hydric soil indicators (Corps 2010). These soils often support shallow-rooted, annual weedy plant species, more often observed in uplands

but tolerant of the disturbed, well-drained conditions near active channels, vegetation observed in these areas can also be deceiving to delineators. These soils were considered hydric using the procedure for problematic hydric soils (*Regional Supplement*, page 111; Corps 2010). Therefore, areas with coarse, sandy soils were primarily delineated based on elevations relative to a 1.6-year return interval stage of the Columbia River, and the presence of either hydrophytic vegetation or shallow-rooted, annual weedy species.

2.2.7 Farm Fields and Lancaster Lake Study Area Methods

Formal wetland delineation data collection for the Farm Fields and Lancaster Lake Study Area was performed on May 29, June 19, June 26, July 3, and August 6, 2014; additional field visits were made to review initial data collection under different seasonal conditions, occurring periodically during 2015 and 2016. The focus of delineation work was to identify the wetland-upland boundary in the northern portion of the Study Area, pasture that has been seeded with primarily FAC species, is actively grazed, and features marginal wetland conditions. The wetland-upland boundary in the southern portion of this Study Area, and along the eastern and western margins, occurs on steep slopes where the transition between upland and wetland is easily observed due to abrupt changes in topography and vegetation type. Although this Study Area is significantly modified, ecologists considered conditions suitable for routine wetland delineation methods, other than modifications described in this section. Vegetation communities may have been influenced by past land management, but sufficient naturalized species were observed to identify trends in vegetation driven by Site hydrology.

Supplemental fieldwork was performed in the northern section to determine whether river stage elevations affected Study Area groundwater condition. River stage during fieldwork was below average, so the fieldwork was conducted to test whether river stage data could be used to extrapolate likely soil saturation elevations from an “average year” as an indicator of wetland hydrology. Supplemental fieldwork was timed to correspond with the highest river stage during field work. Thirty hydrological test pits were excavated using a tractor-mounted auger to a 24-inch depth to evaluate groundwater tables over large areas and aid in delineating the wetland boundary (shown in Figure 3-4a). Test pits locations were determined by Cascade Environmental Group ecologists, and were generally focused along the wetland-upland boundary as indicated by vegetation and where groundwater saturation would be encountered based on corresponding river stage. The water table was measured from the soil surface and the auger pit location was recorded using GPS. Pit locations were then plotted onto a LiDAR-generated topographic surface to identify water table elevation across the Study Area.

Pits were established during May 29, 2014 fieldwork when the Columbia River stage was at 13.27 feet NAVD88 (a stage that is exceeded in 7 years out of 10; see Figure 2-10), representing peak stage for the 2014 growing season. Although the method includes significant margins for error, soil saturation was consistently observed at elevation corresponding to river stage at the time of sampling. Of the 30 test pits excavated, 13 were excavated to depths that intersect with river stage elevation at the time of sampling. Of these 13, 12 included soil saturation within 12 inches of river stage elevations; the test pit that did not contain groundwater is located near a ditch which may have influenced the groundwater elevation. Of the 17 test pits that were excavated above elevations that intersected river stage elevations, 16 contained no groundwater; the test pit that contained groundwater is located within a swale which may have influence local conditions. All test pit data collection includes a margin of error due to the use of GPS location, LiDAR elevation data, and river stage based on gage data. Table 2.5 shows the result for each test plot.

Table 2.5. Results of Hydrological Test Pits

Pit ID	Ground Elevation (ft., NAVD88)	Water Depth Below Surface (in)	Status	Pit ID	Ground Elevation (ft., NAVD88)	Water Depth Below Surface (in)	Status
1	17.00	>24	Upland	16	14.76	>24	Wetland
2	15.67	16	Upland	17	16.20	>24	Upland
3	15.03	12	Wetland	18	16.15	>24	Upland
4	15.38	19	Wetland	19	15.86	>24	Upland
5	16.12	>24	Upland	20	14.50	9	Wetland
6	16.30	>24	Upland	21	14.58	12	Wetland
7	16.50	>24	Upland	22	14.27	10	Wetland
8	16.19	>24	Upland	23	14.38	14	Wetland
9	13.81	9	Wetland	24	13.91	9	Wetland
10	14.27	at ground surface	Wetland	25	13.60	4	Wetland
11	15.75	20	Upland	26	18.67	>24	Upland
12	16.29	>24	Upland	27	18.62	>24	Upland
13	15.86	9	Upland	28	17.28	>24	Upland
14	16.99	>24	Upland	29	18.25	>24	Upland
15	15.70	>24	Upland	30	17.77	>24	Upland

Based on the frequency of that river stage, groundwater conditions within the Study Area were assumed to be average to below average when considering direct observation of soil inundation as a wetland hydrology indicator (soil saturation needs to occur in 5 years out of 10; Environmental Laboratory 1987). Therefore, hydrology test pits with inundation levels below 12 inches were included within the wetland where wetland vegetation and hydric soils were supported. The hydrological test pit data, correlated with presence of hydrophytic vegetation, indicated a wetland elevation boundary at approximately 15.5 feet NAVD88, the same as in the Lewis River and Gee Creek Study Area.

The wetland boundary was mapped where indicators of wetland vegetation, soils, and hydrology could be identified, including consideration of the below-average river stage and associated groundwater saturation elevations. The northern and western boundaries were fully traversed, inspected, and the wetland-upland boundary location was recorded. The majority of the eastern and southern boundaries were traversed; the southeast corner of the Site was difficult to fully access due to deep water and thick vegetation. Relatively steep slopes and rocky substrate strongly suggest a consistent wetland boundary occurs across this portion of the Study Area. Plots were not placed in the southeast corner due to the presence of deep water and obvious wetland conditions.

2.2.8 Gee Creek - South Backwater Study Area Methods

Wetland delineation fieldwork for the Gee Creek - South Backwater Study Area was performed on August 31, November 11, and November 18, 2015. The abrupt wetland/upland transition created by the steep-sided basalt outcroppings within the low-lying backwater areas does not support the formation of wetlands at intermediate elevations and creates a clear boundary between upland and wetland. Thus, uplands extend down to a lower elevation in this Study Area than the others on the Site; wetlands were generally found at elevations below 13 feet NAVD88. Because the underlying substrate was often solid basalt and the transition between wetland and upland vegetation communities is obvious and abrupt, vegetation was used almost exclusively to delineate wetlands in this Study Area. Wetland and upland boundaries were identified with paired plots and GPS used to mark boundary locations. Elevations of boundary points were consistent throughout, allowing efficient mapping by adopting contour lines for wetland-upland boundaries (*1987 Delineation Manual*, Part IV, pages 72-73; Environmental Laboratory 1987). Areas in the northeaster portion of the Study Area have permanently flooded wetlands and were difficult to access; as a result no data plots were placed in this area.

3 Results

3.1 Lewis River and Gee Creek Study Area

Three wetlands were identified within the Study Area, one large wetland covering much of the floodplain area, and two very small wetlands (<0.5 acre) located along the slope of the Middle Lands. Fifty-three formal data plots were established where data on vegetation, soils, and hydrology were recorded using standard wetland delineation data forms (Appendix A). The mapped wetland areas along with data plot and photo point locations are shown, divided into northern and southern Study Area sections for legibility, in Figures 3-1a and 3-1b; however, acreages reported on maps encompass the entire Study Area. Wetland rating forms are provided in Appendix B and photographs of wetland areas are included in Appendix C.

3.1.1 Wetland 1

Wetland 1 extends along the floodplain area between the Lewis and Columbia Rivers and Gee Creek; 274.55 acres (including 60% wetland portion of mosaic area) occur within the Lewis River and Gee Creek Study Area boundary. Riverine shoreline forms the northern, western, and southern boundaries. A large side-channel or slough associated with the Lewis River bisects the wetland in the northeastern portion, flowing between the Lewis and Columbia Rivers; flow in the slough only reaches the Columbia intermittently during high water periods, whereas the mouth of the slough is connected to the Lewis River most of the year. The wetland is bounded to the east by levee-protected pastureland and steep basalt slopes of the Middle Lands. A large tract of the wetland (Long Meadow) is grazed by cattle at moderate stocking densities using a short-rotation approach; these areas have been historically tilled, fertilized, and seeded with forage grasses.

Wetland 1 receives hydrological inputs primarily from surface water flooding by the Columbia and Lewis rivers and Gee Creek, and via hyporheic groundwater effects—groundwater either directly causes shallow soil saturation and/or affects drainage and infiltration of precipitation. Wetland vegetation, wetland hydrology indicators (including river stage data), and hydric soil indicators were present at similar elevations throughout the Study Area. This indicates that the timing for shallow soil saturation during the growing season is strongly linked to river flows throughout most of the Study Area; the porous sandy soils underlying the area respond rapidly to fluctuating river levels. The habitat water control structures in the southern section of the wetland retain Gee Creek floodwaters, as well as precipitation and hyporheic inputs from the

Columbia River, year-round in three impoundments managed as waterfowl ponds. Water levels in the ponds are regulated by flashboard dams. The water control structures are located at lower elevation ranges and they do not appear to have any effect on the wetland boundary.

Fluvial processes of deposition have formed linear ridges (scroll bars) of sandy loam soil interspersed throughout the wetland which support wetland/upland mosaic and upland vegetation. Wetland occurs below elevation 15.5 feet NAVD 88 and wetland/upland mosaic occurs within the polygons mapped with elevation range of 15.5 to 17 feet NAVD88. The wetland/upland mosaic occurs where vegetation communities observed were primarily a mix of FAC and FACU species typical of riparian areas and soils meet hydric soil criteria. Vegetation communities varied within minor elevation ranges and included common species with broad hydrological tolerance; native species tended to dominate in forested areas, whereas non-native species dominated pasture areas. Review of the Columbia River gage data indicates that the Study Area is subject to a wide range of surface water elevations during the growing season from year to year, suggesting that hydrology within the Study Area is highly variable over time. Annual water levels fluctuate by more than 10 feet in depth, and timing of high water varies by months. Given the variable hydrological conditions and the presence of vegetation with broad hydrological tolerance, delineation of this area as mosaic was determined to be appropriate.

Channels within Wetland 1 have filled in with sediment in some areas, due to existing geomorphic conditions and past dredge spoil deposition. Sediment accumulations have reduced the amount of seasonal open water and hydraulic interaction with adjacent rivers, and affected the vegetation community composition. Neither the sediment accretion or spoils deposition have affected the extent of wetland area, as affected elevations are all well below the 15.5 foot NAVD88 wetland elevation applied to the Study Area.

Wetland 1 includes segments of Gee Creek within the Study Area (to mid-channel) because the creek channel is relatively small compared to the width of Wetland 1 and much of the channel supports wetland vegetation during summer draw-down periods.

Wetland 1 is a riverine hydrogeomorphic (HGM) class and features several Cowardin classifications including broad-leaved deciduous, temporarily and seasonally flooded palustrine forested (PFO1A and PFO1C); broad-leaved deciduous, seasonally flooded palustrine scrub-shrub (PSS1C); temporarily and seasonally flooded palustrine emergent (PEMA and PEMC); artificially flooded, diked/impounded palustrine emergent (PEMKh); seasonally flooded-tidal riverine non-persistent emergent (R1EMR); and artificially flooded, diked/impounded, palustrine unconsolidated bottom (PUBKh).

Hydrology

Indicators of wetland hydrology observed during delineation work included the following categories: surface water (A1), high water table (A2), soil saturation (A3), and oxidized rhizospheres along living roots (C3), as well as secondary indicators including drainage patterns (B10), saturation visible on aerial imagery (C9), geomorphic position (D2), and the FAC-neutral test (D5). Secondary hydrological indicators were necessary to appropriately delineate the wetland due to dynamic river-driven groundwater fluctuations and rapidly draining sandy soil conditions; fieldwork occurred outside of peak flow/high water conditions. River stage data was considered in assessment of wetland hydrology throughout the Study Area, and strongly correlated with observed hydrophytic vegetation.

Soil

Soil data collected in wetland data plots meet Corps wetland hydric soil indicator criteria for depleted below dark surface (A11), sandy redox (S5), and depleted matrix (F3) classifications, indicating that iron in the soil has been removed or transformed by processes of reduction and translocation, in some cases below a dark soil surface layer. Dark soil surface layer colors are very dark grayish brown (10 YR 3/2); depleted matrix layer colors are dark gray (10 YR 4/1) to dark grayish brown (10 YR 4/2) to grayish brown (10 YR 5/2) silt with common to many prominent yellow-red redoximorphic features occurring as soft masses and pore linings and common depletions. Soils textures range from sand and sandy loam in sample plots along the riverbanks to silt loam in plots located in landward areas.

All soils observed in wetlands, mosaic areas, and in some upland areas, clearly met hydric soil indicators, despite much of the Study Area soils not being mapped as hydric by NRCS; NWI maps did however identify the entire Study Area as wetland. The reason for incorrect hydric soil mapping is presumed to be due to the Site's floodplain location.

Vegetation

Vegetation communities present within the Study Area are described in detail below. Vegetation communities are defined by their Cowardin class and species dominance in each stratum. They are shown, divided into northern and southern Study Area sections for legibility, in Figures 3-2a and 3-2b.

Non-Persistent Riverine Emergent

This vegetation community occurs in small areas along the shorelines of the Lewis and Columbia rivers. These areas are subject to frequent and severe disturbance from fluvial processes

resulting in scour and deposition as tidal and seasonal floodwaters rise and fall. They have also been used for dredge disposal in the past according to the landowner. Substrates in these areas are sandy and well-drained, and vegetation is only present during low-water periods. Only herbaceous species tolerant of disturbed sandy soil conditions (often weeds) are able to become established. Primary species include hairy cat's ear (*Hypochaeris radicata*; FACU), creeping bentgrass (*Agrostis stolonifera;* FAC), colonial bentgrass (*A. capillaris;* FAC), curly dock (*Rumex crispus*; FAC), sheep sorrel (*R. acetosella*; FACU), common plantain (*Plantago lanceolata*; FACU), white clover (*Trifolium repens*; FAC), rabbitfoot clover (*T. arvense*; UPL), Canada goldenrod (*Solidago canadensis*; FACU), horsetail (*Equisteum arvense*; FAC), and bird's foot trefoil (*Lotus corniculatus*; FAC). Because of rapid drawdown in this area, adaptability to sandy soils and disturbance seems to supersede wetland indicator status as the primary factor for occurrence. This wetland community has a Cowardin classification of R1EMR and covers 16.58 acres.

Bentgrass Palustrine Emergent

This vegetation community is located landward and at a slightly higher elevation range than the non-persistent riverine community and receives somewhat less flooding and scour and deposition, though it is regularly inundated on a seasonal cycle and supports few woody vegetation species. The community is dominated by creeping and colonial bentgrass, with commonly occurring reed canarygrass (*Phalaris arundinacea*; FACW) and creeping Jenny (*Lysimachia nummularia*; FACW) and the occasional presence of opportunistic weed species such as horsetail, curly dock, common plantain, hairy cat's ear, Canada goldenrod, and rabbitfoot clover. This wetland community has a Cowardin classification of PEMC and covers 5.41 acres.

Reed Canarygrass – Slough Sedge Palustrine Emergent

This community, comprised of reed canarygrass and slough sedge (*Carex obnupta*; OBL) interspersed with creeping Jenny, small-flowered bedstraw (*Galium trifidum*; FACW), and common rush (*Juncus effusus*; FACW), occurs within the intermittently connected portion of the slough that connects the Lewis and Columbia rivers. It is seasonally inundated with water which draws down in mid to late spring in most years. This wetland community has a Cowardin classification of PEMC and covers 2.59 acres.

Creeping Spikerush – Reed Canarygrass Palustrine Emergent

This vegetation community is located in a depressional area in the southeastern portion of the Study Area. It is regularly inundated by waters from Gee Creek and a water control system including check-board dams and a rock-fill dam, which retain water in some areas throughout the growing season (Figure 1-2). Reed canarygrass and creeping spikerush (*Eleocharis palustris*; OBL) are the dominant vegetation species, with swamp smartweed (*Persicaria hydropiperoides*;

OBL), lady's thumb (*P. maculosa*; FACW), and water purslane (*Ludwigia palustris*; OBL) occurring occasionally. This wetland community has a Cowardin classification of PEMKh and covers 19.86 acres.

Wapato – Water Purslane – Smartweed Palustrine Emergent

This vegetation community is interspersed within the Creeping Spikerush – Reed Canarygrass Palustrine Emergent community described above, occurring in the wettest areas along the margins of open water and spreads as water levels draw down. It is a characteristically patchy community composed of wapato (*Sagittaria latifolia*; OBL) beds and stands of water purslane, swamp smartweed, and lady's thumb. Reed canarygrass and creeping spikerush also occur within this community, though in less abundance. This wetland community has a Cowardin classification of PEMKh and covers 6.69 acres.

Meadow Foxtail Palustrine Emergent

This vegetation community type occurs in grazed pasture areas inland from the Oregon ash–black cottonwood forests occurring along the banks of the waterways. It is dominated by meadow foxtail (*Alopecurus pratensis;* FAC) and interspersed with other commonly seeded pasture grass species such as creeping bentgrass, colonial bentgrass, perennial ryegrass (*Lolium perenne*; FAC), and velvetgrass (*Holcus lanatus*; FAC), along with common weedy forbs such as creeping Jenny, white clover, bird's foot trefoil, curly dock, and creeping buttercup (*Ranunculus repens*; FAC). Reed canarygrass, swamp smartweed, and water smartweed (*Persicaria amphibia*; OBL) also occasionally occur within this community. This wetland community has a Cowardin classification of PEMC and covers 27.41 acres.

Mixed Willow/Reed Canarygrass Scrub-Shrub

This vegetation community is located along the Lewis River shoreline. It is seasonally flooded and prone to regular scour and deposition. It features sandy and silty substrates colonized by Columbia River willow (*Salix columbiana*; FACW) and Sitka willow (*S. sitchensis*), along with an occasional Douglas' spirea (*Spiraea douglasii*; FACW) and an understory dominated by reed canarygrass interspersed with bentgrass, hairy cat's ear, Canada goldenrod, bird's foot trefoil, and even some shepherd's purse (*Capsella bursa-pastoris*; FACU) and Columbia coreopsis (*Coreopsis tentoria*; FACU). This wetland community has a Cowardin classification of PSS1C and covers 2.70 acres.

Mixed Willow/Creeping Jenny Scrub-Shrub

This vegetation community is located near the convergence of the Lewis and Columbia rivers starting just beyond the shoreline and expanding inland. It is seasonally flooded, though with

apparently lower velocity water, and contains small depressional areas that retain water for a longer period throughout the growing season and a more silt-dominated substrate. The community is comprised of a closed canopy stand of Pacific willow (*Salix lasiandra*; FACW) and Sitka willow with an occasional Oregon ash (*Fraxinus latifolia*; FACW) and a sparse understory of creeping Jenny, slough sedge, creeping bentgrass, and poverty rush (*Juncus tenuis*; FAC). The more disturbed area along the shoreline frontage features sandy deposits and reed canarygrass as a dominant species. This wetland community has a Cowardin classification of PSS1C and covers 3.81 acres.

Pacific Willow/Reed Canarygrass Palustrine Scrub-Shrub

This vegetation community type occurs in the eastern section of the Study Area, draining into Gee Creek. It is situated in a low-lying area that remains saturated-to-inundated throughout most of the growing season due in part to the water control system. It is comprised of an overstory dominated by Pacific willow interspersed rarely with Oregon ash and an understory dominated by reed canarygrass interspersed commonly with small-flowered bedstraw, creeping Jenny, curly dock, and meadow foxtail, and occasionally, creeping spikerush and swamp smartweed. This wetland community has a Cowardin classification of PSS1C and covers 72.03 acres.

Oregon Ash – Black Cottonwood/Reed Canarygrass Palustrine Forest

This vegetation community type occurs along the upper banks of the Lewis and Columbia rivers and Gee Creek, above ordinary high water elevation, expanding landward. It is subject to seasonally fluctuating groundwater levels and overbank flooding on a semi-annual basis. It is comprised of mid-seral to mature Oregon ash and black cottonwood *(Populus balsamifera*; FAC) forest with a dense-to-open shrub layer of Pacific crabapple (*Malus fusca*; FACW), Douglas' spirea, Pacific willow, black hawthorn (*Crataegus douglasii*; FAC), redosier dogwood (*Cornus alba [C. sericea]*; FACW), twinberry (*Lonicera involucrata*; FAC), and Nootka rose (*Rosa nutkana*; FAC) and an herbaceous layer composed primarily of reed canarygrass frequently interspersed with creeping Jenny and small-flowered bedstraw and occasional dense stands of slough sedge. This wetland community has a Cowardin classification of PFO1C and covers 66.41 acres.

Oregon Ash/Reed Canarygrass Palustrine Forest

This community occurs in the southern and eastern sections of the Study Area. It is comprised of an open-to-closed canopy of Oregon ash. Except for areas where the ash is dense, the understory is almost a pure stand of reed canarygrass. Under dense ash canopy, the understory is sparse and features slough sedge and creeping Jenny in addition to reed canarygrass. This wetland community has a Cowardin classification of PFO1C and covers 11.43 acres.

3.1.2 Wetland Mosaic

Areas within the Study Area categorized as "mosaic" occur on narrow ridges and hummocks supporting both hydric and non-hydrophytic vegetation species within a wetland matrix. The ratio of wetland area to upland area is estimated to be 60% wetland/40% upland based on both the formal sample transects and broad informal sampling. Data plots collected in forested areas were 60% wetland when quantified with formal transects. Emergent plots were 100% wetland, but nearly all dominant wetland species were pasture grass species with FAC indicator status, and only 83% of the emergent plots also met prevalence index, indicating emergent plots were less reliable than forested plots. In coordination with the Corps, forested plots were used to estimate the wetland-upland ratio in the mosaic due to its more discernible (and native) vegetation community and correspondence with informal transect estimates. Per the methods in the *Regional Supplement* (pages 123-124; Corps 2010), formal data forms were completed on each transect at representative locations; these and the point intercept data are included with Appendix A.

Wetland/upland mosaic occurs over 50.46 acres within the Study Area (30.28 acres wetland, 20.18 acres upland). Mosaic characteristics were found generally between elevations of 15.5 and 17 feet NAVD88, as mapped by available topographic data. Sample plots in the area featured hydric soils, but varied in dominance and prevalence of hydrophytic vegetation, and did not exhibit wetland hydrology indicators during the dates of fieldwork. Soils meet Corps wetland hydric soil indicator criteria for depleted below dark surface (A11) and depleted matrix (F3). Dark soils surface layers are very dark grayish brown (10 YR 3/2); depleted matrix colors are dark grayish brown (10 YR 4/2) to grayish brown (10 YR 5/2) to gray (10 YR 5/1) and feature common to many yellow-red redoximorphic concentrations and depletions. Soil textures range from silt loam to sandy loam to loamy sand. Cowardin classifications include temporarily flooded palustrine emergent (PEMA) and broad-leaved deciduous, temporarily flooded palustrine forested (PFO1A). Vegetation communities include the following habitat types:

Oregon Ash – Black Cottonwood/Snowberry Forest

This vegetation community is similar to the palustrine forested wetland community described above except it features some western redcedar (*Thuja plicata*; FAC) interspersed within the canopy and snowberry (*Symphoricarpos albus*; FACU), Himalayan blackberry (*Rubus armeniacus*; FACU), and blackcap raspberry (*R. leucodermis*; FACU) as common or subdominant components in the shrub layer. Cleavers (*Galium aparine*; FACU), stinging nettle (*Urtica dioica*; FAC), and Dewey's sedge (*Carex deweyana*; FAC) occur in the herb layer. High groundwater levels and

overbank flooding may occur in some years. This community has a Cowardin classification of PFO1A and covers 37.89 acres.

Meadow Foxtail Pasture

This vegetation community is similar to the reed canarygrass – meadow foxtail palustrine emergent wetland community, but it does not feature reed canarygrass as a dominant species. Instead, there is a higher incidence of sweet vernal grass (*Anthoxanthum odoratum*; FACU), Canada thistle (*Cirsium arvense*; FAC), bull thistle (*C. vulgare*; FACU), white clover, and cutleaf geranium (*Geranium dissectum*; NL), and weedy upland species such as oxeye daisy (*Leucanthmum vulgare*; FACU), dandelion (*Taraxacum officinale*; FACU), self-heal (*Prunella vulgaris*; FACU), curly dock, common plantain, and hairy cat's ear are present. This community has a Cowardin classification of PFO1A and covers 12.57 acres.

3.1.3 Wetland 4

Wetland 4 is a relatively small (0.04 acres) wetland located along the lower western slope of the Middle Lands near the gravel access road leading to the waterfowl ponds of Wetland 1. It is situated in an area where the typically steep slope flattens out enough to collect run-off briefly from the rocky slopes above. It supports only marginal wetland characteristics and may not feature wetland hydrology in all years. The wetland is bound by forested uplands; an access road runs near the southwestern boundary. Wetland 4 is categorized as a slope HGM class and consists of a PFO1B (saturated) Cowardin class.

Hydrology

Hydrology within Wetland 4 appears to be largely precipitation driven, though the water table may nearly reach the ground surface during times of high river stage. The wetland is likely dry throughout much of the growing season. Only secondary hydrological indicators were observed within Wetland 5 at the time of fieldwork; they included geomorphic position (D2) and FAC-neutral test (D5).

Soils

Soil data in Wetland 4 meet Corps hydric soil indicator criteria for redox dark surface (F3). Soil matrix colors ranged from very dark grayish brown (10 YR 3/2) in the upper layers to black (10 YR 2/1) in the lower layer and featured many prominent yellow-red redoximorphic concentrations and depletions occurring as soft masses. Soil texture is silt loam.

Vegetation

Wetland 4 is vegetated by open Oregon ash forest with an understory of Nootka rose, black hawthorn, and reed canarygrass. Trailing blackberry (*Rubus ursinus*; FACU) spreads into the wetland from adjacent uplands.

3.1.4 Wetland 5

Wetland 5 is characteristically very similar to Wetland 4, located just to the southeast of it along the same access road. It is slightly larger (0.22 acres), but also situated where the Middle Lands slope flattens out and likely does not feature wetland hydrology in all years. The wetland is bound by forested uplands. Wetland 5 is categorized as a slope HGM class and consists of a PFO1B Cowardin class.

Hydrology

Like Wetland 4, hydrology within Wetland 5 appears to be largely precipitation driven, though the water table may nearly reach the ground surface during times of high river stage. The wetland is likely dry throughout much of the growing season. Only secondary hydrological indicators including geomorphic position and FAC-neutral test were observed within Wetland 5.

Soils

Soil data in Wetland 5 meet Corps hydric soil indicator criteria for redox dark surface (F3). Soil matrix colors ranged from very dark gray (10 YR 3/1) in the upper layers to black (10 YR 2/1) in the lower layer and featured many prominent yellow-red redoximorphic concentrations and depletions occurring as soft masses. Soil texture is silt loam.

Vegetation

Wetland 5 is vegetated by open Oregon ash forest with an understory of spirea and reed canarygrass.

3.1.5 Wetland Rating Category, Functions, and Buffers

Wetland 1 was rated as three separate units (1a, 1b, and 1c; Figure 3-3). The wetland was divided into rating units based on differences in hydrological conditions, specifically:

- A topographic divide separates rating units: Unit 1a drains to the Columbia and Lewis rivers; Units 1b and 1c drain to Gee Creek.

- Unit 1a is free of impoundments other than fill placement within sloughs; Unit 1b includes water control structures for purposes of waterfowl habitat; Unit 1c is free of impoundments, separated from Unit 1b by a rockfill and flashboard dams.

Each unit rated as Category I based the presence of "special characteristics," including mature forest habitats and features of a natural heritage wetland. Units 1a and 1b also rated as Category I based on their functions alone; Unit 1c rated as a Category II based on its functions. Unit 1a was determined to merit a buffer width of 150 feet due to a high habitat functions rating; Units 1b and 1c merited a buffer width of 130 feet based on a lower habitat functions rating.

Wetlands 4 and 5 each rated as Category III wetlands. The standard buffer widths for Wetlands 4 and 5 was determined to be 75 feet; however, in the case that the corresponding buffer width results in a buffer area greater than two times the area of the wetland, the buffer may be reduced provided that the buffer width is not less than the water quality buffer width for low intensity uses per Section 40.450.030(E)(4)(c) of the County code. Using this guidance, the buffer width for Wetlands 4 and 5 has been reduced from 75 feet to 40 feet. Rating results for all wetlands are shown in Table 3.1.

Table 3.1. Wetland Ratings for Wetland 1, 4, and 5

Wetland Unit	Water Quality	Hydrology	Habitat	Total Function Score	Final Rating	Clark County Buffer Width – Low Intensity Land Use
1a	9	6	9	24	I	150 feet
1b	9	8	8	25	I	130 feet
1c	7	7	8	22	I	130 feet
4	5	6	7	18	III	40 feet
5	6	6	7	19	III	40 feet

Wetland 1 rating units were determined to be riverine HGM classes. Units 1a and 1b scored "high" on water quality functions based on characteristics including surface depressions that cover one-half to three-quarters of the wetland area and the presence of trees and shrubs covering more than two-thirds of the area. The presence of grazing within the units and their location within a basin where human activities have impacted water quality, confer landscape potential and site value. Landscape and site potential of Unit 1c was limited somewhat by a lack

of surface depressions and absence of adjacent pollution-generating land uses. All three units scored "medium" to "medium-high" on hydrologic function. Each unit has site potential and value conferred by high forest and shrub cover which slow down water velocities during floods and are located upstream of flood-prone areas; however, they have a limited capacity for overbank floodwater storage based on the ratio of wetland to stream width (averaging the Columbia River, Lewis River, and Gee Creek together). With regard to habitat function, all units scored "high" to "medium-high". Each unit features diverse vegetation structure, multiple hydroperiods, and high dispersion of habitats, as well as special habitat features including large, downed, woody debris, standing snags, undercut banks and steep banks in adjacent waterways (for wildlife cover and denning), and thin-stemmed persistent vegetation in areas of seasonal inundation (structures for egg-laying amphibians), all of which provide habitat potential. They also feature large relatively undisturbed buffers and intact corridors conferring opportunity for habitat. Unit 1a rates slightly better in regards to habitat because it contains more habitat features than Units 1b or 1c (standing snags, greater species diversity, and more vegetation classes). All three units feature "special characteristics" of natural heritage wetland and mature forest. The natural heritage wetland characteristic is based on the location of the units within a section/township/range which contains a natural heritage wetland (accessed from the DNR Washington Natural Heritage Program [WNHP] website http://www1.dnr.wa.gov/nhp/refdesk/datasearch/index.html) and the WNHP-mapped presence of water howellia (*Howellia aquatilis*), a state threatened plant species. The mature forest characteristic is based on the presence of at least 1 acre of forest where the trees are over 80 years old.

Wetland 4 and 5 are determined to be slope HGM classes. They both rated fair with regard to water quality and hydrologic function based on their flat slopes, presence of dense, uncut vegetation and location in a basin with 303(d) listed streams and flooding problems; however the surrounding low-intensity land use does not confer much landscape potential. Habitat site potential for the wetlands is limited by the presence of few vegetation structures, hydroperiods or special habitat features. Habitat landscape potential and value rate high, however, due to the intact buffers, good connectivity to other habitats and presence of WDFW priority habitats and species. Both wetlands are located within a section/township/range which contains a natural heritage wetland (accessed from the DNR WHNP website); however, they do not feature any mapped presence of state-listed threatened or endangered plant species, so they do not qualify as natural heritage wetlands.

3.1.6 Other Waters

Other waters within and adjacent to the Lewis River and Gee Creek Study Area include the Columbia River, Lewis River, and Gee Creek (Cowardin class: riverine-tidal unconsolidated bottom, permanently- tidally flooded [R1UBV]). Surface flows and hyporheic influence from these rivers appear to be the primary source of hydrological inputs to Study Area wetlands. OHWM for these waters was not considered as a part of this study as it varies over time due to the wide range of river flow volumes; OHWM will be determined through the mitigation and conservation bank regulatory process.

The Columbia River is the largest river in the Pacific Northwest with a basin area of 258,000 square miles that includes portions of Washington, Idaho, Montana, Nevada, and British Columbia, Canada, and drains into the Pacific Ocean. It is a major commerce route between for communities in Oregon and Washington and foreign ports. The Columbia mainstem is tidally influenced up to and beyond the reach adjacent to the Study Area. The Columbia River has measurable salinity that varies in extent and concentration seasonally, and the tidal-freshwater hydrologic regime influences the lower 7-9 miles of all tributaries depending upon the location and geomorphology along the river gradient. The Columbia River basin supports Chinook salmon, coho salmon, sockeye salmon, bull trout, and steelhead trout, as well as several other listed anadromous fish species such as Pacific eulachon and Pacific and Western brook lamprey. The Site is located approximately 60 miles downstream of the Bonneville Dam, the downstream-most of 22 major mainstem Columbia and Snake River major hydroelectric dams (there are 56 dams exclusively for hydropower in the basin alone), which greatly affect flow volume and discharge, in addition to sediment transport and other large-scale watershed processes. Flows in the Columbia at the Study Area range widely, fluctuating over 15 feet in stage height annually. Backwaters from the Columbia flows and tides affect the other waters in the Study Area: Lewis River and Gee Creek. The river is designated as a Traditionally Navigable Water (TNW) according to the *Navigable Waters of the U.S. in Washington State* (Corps 2008) regulated under federal jurisdiction and is designated as a Type S: Shoreline of the State regulated under Washington State jurisdiction. It is a major transportation corridor and is dredged to maintain channel depth.

The Lewis River is a major glacier-fed tributary with headwaters on Mt. St. Helens and Mt. Adams that stretches 93 stream miles before flowing into the Columbia River at RM 87 adjacent to the Study Area. The basin area covers approximately 1,050 square miles. The river is tidally influenced in the lower 8-12 miles, and supports multiple key stocks of anadromous and resident salmonids. It is also regulated by a series of three hydroelectric dams. The Lewis River is also designated as a TNW and a Type S water.

Gee Creek is a direct tributary to the Columbia River with a drainage basin of 13.6 square miles. It is perennial and supports native fish habitat including rearing and spawning habitat for coho salmon upstream of the project area, and rearing habitat for all species of salmonids within the Study Area. It is also considered a Type S stream, though not a TNW. Sedimentation has occurred within the Gee Creek Channel, both from Columbia River backwater that carries and deposits sand and silt, and changes in land use in the upper basin that has contributed to increased fine sediment load. Due to a dramatic decrease in stream gradient as the creek flows off the upland terrace and onto the Columbia River floodplain, a natural depositional reach is created through the Study Area. Sand shoaling and backwater deposits near the confluence with the Columbia prevent surface waters from Gee Creek from flowing into the Columbia River during extreme low-flow and low-tide conditions in some years. Because Gee Creek flows directly into a TNW (the Columbia River), and does contain relatively permanent flow, it is also regulated under federal jurisdiction. The Study Area extends to the centerline of the Gee Creek channel, which becomes vegetated during times of low water and the channel was therefore included as a feature of Wetland 1.

3.1.7 Uplands

Uplands within the Study Area consist of grass-dominated pasture, and deciduous and mixed conifer/deciduous forest. Upland areas are generally above elevations of 17 feet NAVD88 and cover 97.91 acres within the Study Area (including upland portions of mosaic areas). Upland areas are not subject to overbank flooding or groundwater inundation except for extreme high water events, but fluctuating groundwater levels driven by the proximity to large water bodies may affect soil and vegetation characteristics.

Soils are very dark gray (10 YR 3/1) to dark grayish brown (10 YR 3/2) to dark brown (10 YR 3/3) in color and, in some cases, feature depleted matrices below a dark soil surface layer, meeting Corps wetland hydric soil indicator criteria (A11). Depleted matrix (F3) colors are dark grayish brown (10 YR 4/2) to grayish brown (10 YR 5/2) and feature common to many yellow-red redoximorphic concentrations. Soil textures range from silt loam to sandy loam to sand. Areas with hydric soil indicators were determined to be uplands based on the presence of upland vegetation and lack of wetland hydrology indicators.

Vegetation includes the following habitat types (shown in Figures 3-2a and 3-2b):

Oregon Ash – Black Cottonwood /Snowberry Forest

This community type features an upland component as well as mosaic and wetland ones. The upland counterpart is very similar to the mosaic forest community except that it features

snowberry, Himalayan blackberry and trailing blackberry (*R. ursinus*; FACU), and as dominant species, and sweet cicely (*Osmorhiza berteroi*; FACU), ground ivy (*Glechoma hederacea*; FACU), and burdock (*Arctium minus*; UPL) are present. It also features less cover of typical wetland shrubs such as twinberry, redosier dogwood, and Nootka rose. The presence of an Oregon ash–dominated overstory, a tree with a FACW wetland indicator status, may be attributed to the deeply-penetrating root systems of trees which enable them to take advantage of the relatively high water table that is present during much of the year due to the proximity of large water bodies. This community covers 31.94 acres.

Oregon Ash – Black Cottonwood /Stinging Nettle Forest

This upland forest community is similar to the one described above, except it features an herb layer composed largely of stinging nettle. Vegetation clearing has taken place in this area for vehicle access to the Lewis River. It covers an area of 4.81 acres in the northeastern section of the study Site.

Oregon Oak/Indian Plum – Himalayan Blackberry Upland Forest

This upland forest community occurs on small "islands" of weathered basalt outcroppings in the southeastern section of the Study Area as well as the lower slope of the Middle Lands along the eastern margin. These areas feature Olympic very stony clay loam soils that support a mature Oregon oak (*Quercus garryana*; FACU) overstory with an understory of Indian plum (*Oemeleria cerasiformis*; FACU), Himalayan blackberry, and snowberry. This community covers 1.64 acres.

Oregon Oak/Douglas Fir – Snowberry Upland Forest

This upland forest community occurs along the slopes of the Middle Lands and covers 32.21 acres. It includes an overstory of Oregon Oak interspersed with Douglas fir, Oregon ash, and bigleaf maple with a well-developed shrub layer of snowberry, Himalayan blackberry, blackcap raspberry, serviceberry (*Amelanchier alnifolia*; FACU), Oregon grape (*Mahonia nervosa*; NOL), oceanspray (*Holodiscus discolor*; FACU) , oval-leaved viburnum (*Viburnum ellipticum*; NOL), trailing blackberry, and poison oak (*Toxicodendron diversilobum*; NOL). The herbaceous layer commonly features western swordfern, cleavers, herb-Robert (*Geranium robertianum*; NOL), miner's lettuce, oak fern (*Gymnocarpium dryopteris*; NOL), St. John's wort (*Hypericum perforatum*; FACU), sweet vernal grass, and orchardgrass.

Meadow Foxtail Pasture

Upland pasture areas are of similar vegetation composition as mosaic pasture areas. However, there is no reed canarygrass present, and there is a higher incidence of weedy upland species, including tansy ragwort (*Senecio jacobaea*; FACU). This community covers 4.18 acres.

Weedy – Ruderal Herbaceous Vegetation (Levee)

The vegetation community colonizing the levee along the northeastern boundary of the Study Area, as well as the rock-fill dams in the southern section, is comprised of pasture grasses with a high occurrence of herbaceous weeds and pioneer species as well as Himalayan blackberry. Dominant grasses include colonial bentgrass, velvetgrass, perennial ryegrass, and sweet vernal grass. Weedy forbs include wild carrot (*Daucus carota*; FACU), common plantain, St. John's wort (*Hypericum perforatum*; FACU), horsetail, hairy cat's ear, tansy ragwort, wild chamomile (*Matricaria ricutita*; UPL), common mullein (*Verbascum thapsus*; UPL), Canada thistle, and bull thistle. This community covers 2.95 acres.

3.2 Farm Fields and Lancaster Lake Study Area

One wetland was identified within the Study Area, covering much of the floodplain area, and 39 formal data plots were established where data on vegetation, soils, and hydrology were recorded using standard wetland delineation data forms (Appendix A). The mapped wetland areas along with data plot and photo point locations are shown, divided into northern and southern Study Area sections for legibility, in Figures 3-4a and 3-4b; however, acreages reported on maps encompass the entire Study Area. Wetland rating forms are provided in Appendix B and photographs of wetland areas are included in Appendix C.

3.2.1 Wetland 2

Wetland 2 extends along the levee-protected floodplain area between the Lewis River and Gee Creek; 252.39 acres occur within the Farm Fields and Lancaster Lake Study Area boundary. The wetland is bounded on the north by levee protected upland pasture, on the east by upland forest and a railway embankment, on the west by the Middle Lands, and on the south by a levee associated with Gee Creek that also serves as an access road.

The wetland is fenced and cross-fenced off into five or more fields that are grazed by cattle at moderate stocking densities and short-rotation timeframes; these areas have been historically tilled, fertilized, and seeded with forage grasses. A gravel access road bisects the wetland in the northern section.

The wetland slopes gradually from north to south, with drainage facilitated by a network of ditches, totaling 2.94 miles. Ditches are flat-bottomed and vegetated; surface water was observed in the lower parts of ditches at the southern end of the Study Area in August. The northern end of the wetland is drier and supports marginal wetland characteristics. Subsequently, it can be grazed earlier in the growing season and sustains more disturbance than wetter areas. Vegetation present in the northern end is primarily seeded FAC grasses, with very few native wetland species present. Wetland 2 retains progressively more water throughout the growing season as it proceeds south, terminating at the shoreline of Lancaster Lake. The size of Lancaster Lake varies seasonally and interannually, from 8 to 24 acres. At the southern end, the wetland supports a predominantly FACW vegetation community that includes several native wetland species, with areas of forested and shrub-scrub wetland. Lancaster Lake is formed by the impoundment of surface inputs and groundwater/hyporheic inputs by the levee; a flapper valve tidegate at the levee regulates the water level in the lake. Seasonal flooding of the southern section of the Study Area occurs as the lake backwaters into ditches and as sheetflow across the wetland surface. A small drainage off the basalt hillslope along the southwestern boundary also flows seasonally into the wetland.

Historically, Wetland 2 functioned as a riverine wetland with surface water flooding occurring primarily from the south through the Narrows via Gee Creek and backwater and tidal influence from the Columbia River. However, the levee at this location prevents surface connectivity with the backwater area of Gee Creek, prohibiting tidal fluctuations and all but the most extreme (100+ year) flood events from affecting the Study Area. The constructed levee along the Lewis River occurs in a location where a natural floodplain berm (common along rivers and especially tidal channels) had existed, but the natural levee was also likely overtopped during 50 to 100-year flood events. Upstream damming and onsite levee construction have prevented surface water flooding by the Lewis River except during major (100-year) flood events such as occurred in 1948, 1956, 1964 and 1996. The delineated wetland boundary for Wetland 2 corresponds to the same elevation as the wetland boundary for Wetland 1, likely due to hyporheic groundwater effects.

Wetland 2 features both slope and lacustrine HGM classes and several Cowardin classifications including partially drained/ditched (special modifier ‘d’) PFO1Ad, PSS1Cd, PEMAd , PEMCd and palustrine persistent emergent, semipermanently flooded (PEM1Fd); and excavated (special modifier ‘x’) PEMCx and PEM1Fx .

Hydrology

Wetland hydrology was determined be present during wetland delineation using the following indicators: (A1), high water table (A2), soil saturation (A3), inundation visible on aerial imagery (B7), and oxidized rhizospheres along living roots (C3), as well as secondary indicators including saturation visible on aerial imagery (C9), geomorphic position (D2), and the FAC-neutral test (D5). Secondary hydrological indicators were necessarily applicable during mid-summer delineation field work due to seasonally dry conditions and low surface and groundwater levels.

Soil

Soil data collected in Wetland 2 data plots meet Corps hydric soil indicator criteria for depleted below dark surface (A11), loamy gleyed matrix (F2), and depleted matrix (F3) indicating that iron in the soil has been removed or transformed by processes of reduction and translocation, in some cases below a dark soil surface layer. Dark soil surface layer colors are very dark grayish brown (10 YR 3/2), depleted matrix layer colors are dark gray (10 YR 4/1) to dark grayish brown (10 YR 4/2) to grayish brown (10 YR 5/2) to gray (10 YR 6/1), and gleyed matrix colors are dark gray (4/N) with common to many prominent yellow-red redoximorphic features occurring as soft masses and pore linings and common to many depletions. Soil textures range from silt loam to sandy loam with sand occurring in plots in the northwestern section of the Study Area at the location of an historical levee breach event.

Vegetation

Vegetation communities present within Wetland 2 are described in detail below. Vegetation communities are shown, divided into northern and southern Study Area sections for legibility, in Figures 3-5a and 3-5b.

Colonial Bentgrass – Velvetgrass Palustrine Emergent

This vegetation community occurs over a large area in upper elevations in the northern section of the Farm Fields and Lancaster Lake Study Area. It is a marginal wetland area that may not support wetland hydrology in drier years and most all of the species present have a FAC wetland indicator status. The area has been tilled and seeded with pasture grasses within the past three years and it is grazed by cattle at moderate stocking densities. It is also mowed regularly. Dominant species include colonial bentgrass and velvetgrass interspersed with tall fescue (*Festuca arundinacea;* FAC), perennial ryegrass, meadow foxtail, white clover, bird's foot trefoil, creeping buttercup, and water smartweed. This wetland community has a Cowardin classification of PEMAd and covers 47.04 acres.

Colonial Bentgrass – Water Foxtail Palustrine Emergent

This vegetation community covers a small patch in the southern section of the Study Area, just north of the willow dominated area. This community is subject to seasonal inundation, but is dry by mid growing season. The area appears to be lightly grazed at moderate stocking densities and may be mown approximately once a year. It is dominated by colonial bentgrass, water foxtail (*Alopecurus geniculatus*; OBL), wild mint (*Mentha arvensis*; FACW), and white clover with curly dock, bird's foot trefoil, water smartweed, and reed canarygrass occurring commonly. This wetland community has a Cowardin classification of PEMCd and covers 3.81 acres. It is unknown how this small area developed its distinctive vegetation community.

Tall Fescue – Velvetgrass Palustrine Emergent

This vegetation community covers 5.40 acres of the Lower and Upper Front Fields (refer to Figure 1-3) in the northern section of the Study Area, interspersed with upland pasture communities. It is subjected to grazing by cattle at moderate stocking densities, has been tilled and seeded within the past three years, and is regularly mown. Similar to the Colonial Bentgrass – Velvetgrass Palustrine Emergent vegetation community, it supports marginal wetland characteristics: It dries out early in the growing season and may not feature wetland hydrology in all years. The community is dominated by tall fescue and velvet grass, interspersed with perennial ryegrass and colonial bentgrass. Weedy forbs such as common plantain, white clover, creeping buttercup, and hairy cat's ear occur commonly. This wetland community has a Cowardin classification of PEMAd.

Common Rush – Reed Canarygrass Palustrine Emergent

This vegetation community covers a large portion (41.81 acres) in the central section of the Study Area. It is subject to seasonal flooding, drying out by mid-growing season. Common rush and reed canarygrass are dominant species in the community, with creeping Jenny forming thick mats along the soil surface. Water smartweed is common and wild mint, white clover, slough sedge, and creeping spikerush occur occasionally. This wetland community appears to be lightly grazed at moderate stocking densities and may be mown approximately once a year. It has a Cowardin classification of PEMCd.

Common Rush – Velvetgrass Palustrine Emergent

This vegetation community covers much of Lake Field. It has a similar community composition as the Common Rush – Reed Canarygrass Palustrine Emergent community, but it receives somewhat less inundation, so species composition tips toward pasture grasses. It features common rush and velvetgrass as dominant species with commonly occurring colonial bentgrass,

creeping bentgrass, meadow foxtail, reed canarygrass, bird's foot trefoil, and water smartweed. This wetland community appears to be grazed at moderate stocking densities and mown regularly. It has a Cowardin classification of PEMAd and covers 24.81 acres.

Creeping Spikerush – Reed Canarygrass Palustrine Emergent

This is a small, yet distinctive vegetation community occurring over a small area just north of the willow scrub-shrub area in the southern section of the Study Area. It is seasonally inundated and remains saturated throughout much of the growing season, likely due to a small, semi-permanently flooded depression located near the convergence of several ditches that retain backwater from Lancaster Lake. Reed canarygrass is a dominant species, but it has not outcompeted creeping spikerush, which occurs as a co-dominant in this community. It also features an array of wetland forbs interspersed within the understory including wild mint, creeping Jenny, water smartweed, American brooklime (*Veronica americana*; OBL), and rarely, common silverweed (*Argentina anserina*; OBL). This wetland community appears to be lightly grazed at moderate stocking densities and may be mown approximately once a year. It has a Cowardin classification of PEMCd and covers 1.86 acres.

Reed Canarygrass – Smartweed Palustrine Emergent

This vegetation community occurs along the shoreline of Lancaster Lake. It is subject to fluctuating water levels, but the dike at Gee Creek retains water such that the area remains saturated to inundated throughout the growing season. The community is dominated by reed canarygrass interspersed with lady's thumb and swamp smartweed. This wetland community has a Cowardin classification of PEMKh and covers 17.83 acres.

Wapato – Smartweed Palustrine Emergent

This vegetation community is interspersed within the Reed Canarygrass – Smartweed Palustrine Emergent community described above, occurring in the wettest areas along the margins of open water and spreads as the water level draws down. It is a characteristically patchy community composed of wapato beds and stands of swamp smartweed and lady's thumb. Reed canarygrass occurs within this community, though in less abundance. This wetland community has a Cowardin classification of PEMKh and covers 18.53 acres.

Reed Canarygrass Palustrine Emergent

This vegetation community occurs along the eastern and western boundaries of the Study Area, and within the ditches. It is generally consists of a very dense, monotypic stand of reed canarygrass. Velvetgrass, colonial bentgrass, creeping Jenny, common rush, or bird's foot trefoil may occur occasionally to infrequently in some areas. Cattail (*Typha latifolia*; OBL) is observed

in the deeper, wetter ditches. These ditches and peripheral areas are fenced off from cattle and are not grazed, but they are occasionally mowed. Hydrology within this community ranges from temporarily flooded/saturated (PEMA) in the north to semipermanently flooded (PEMKh) in the case of the southern end of the ditches. This wetland community covers 19.77 acres.

Pacific Willow/Reed Canarygrass Palustrine Scrub-Shrub

This vegetation community type occurs over a large area in the southern section of the Study Area, north of Lancaster Lake; in two small patches in the northeastern section of the Study Area; and in a linear stand in the northwestern section. This community remains saturated-to-inundated throughout most of the growing season: in the north due to water retained in ditches and in the south due to backwater from the lake. It is composed of an overstory of Pacific willow and an understory of reed canarygrass with occasionally occurring water smartweed and creeping Jenny. This wetland community is subject to some impact by livestock grazing, primarily in the occurrence located in the northeastern section of the Study Area. It has a Cowardin classification of PSS1Cd and covers 39.49 acres of the Study Area.

Oregon Ash – Black Cottonwood/Reed Canarygrass Palustrine Forest

This vegetation community type occurs along a ditch and Lancaster Lake on the southeastern boundary of the Study Area and in a small stand along another ditch in the northeastern section. It is subject to seasonally fluctuating groundwater levels, with some overbank flooding, especially where it occurs near the shoreline of Lancaster Lake. It consists of mid-seral to mature Oregon ash-black cottonwood forest with a dense-to-open shrub layer of Pacific crabapple, Douglas' spiraea, Pacific willow, black hawthorn, redosier dogwood, twinberry, and Nootka rose, and an herbaceous layer composed primarily of reed canarygrass frequently interspersed with creeping Jenny and small-flowered bedstraw. This wetland community has a Cowardin classification of PFO1A and covers 8.34 acres.

3.2.2 Wetland Rating Category, Functions, and Buffers

Wetland 2 was rated as three separate units (2a, 2b, 2c; Figure 3-6). The wetland was divided into rating units based on differences in hydrological conditions, specifically:

- Ditches create differences in hydrological regime, separating rating units.
- Unit 2c is affected by a large impoundment of Gee Creek (Lancaster Lake), resulting in a different HGM class for this unit.

Units 2a and 2b rate as Category III wetlands and Unit 2c rates as a Category II wetland. The ratings assess hydrological, water quality, and habitat function based on a systematic assessment process. Rating results for all units of Wetland 2 are shown in Table 3.2.

Table 3.2. Wetland Rating for Wetland 2

Wetland Unit	Water Quality	Hydrology	Habitat	Total Function Score	Final Rating	Clark County Buffer Width – Low Intensity Land Use
2a	5	5	7	17	III	75 feet
2b	5	5	7	17	III	75 feet
2c	8	4	8	20	II	130 feet

Units 2a and 2b are determined to be slope HGM classes and scored identically. With regard to water quality functions, both units scored "low" on site potential due to a lack of dense, uncut herbaceous vegetation (wetlands are grazed and mown); however, the presence of grazing within the units and their location within a basin where human activities have impacted water quality confer landscape potential and site value. In regard to hydrological functions, site and landscape potential was "low" due to vegetation conditions and the lack of excess surface water runoff draining into the wetlands, though site value is present due to flood-prone areas downstream. Habitat functions rated moderately well: site potential is limited by a lack of diversity in vegetation structure, hydroperiods, species richness, and special habitat features, but connectivity to undisturbed habitat and their inclusion in a Shoreline Master Plan (Clark County 2012) confer landscape potential and site value.

Unit 2c was determined to be a lake-fringe HGM class. It scored well in regard to water quality functions based on the average width of vegetation along the shore of Lancaster Lake (more than 33 feet wide) and the presence of grazing within the wetland. Hydrological functions scored low due to the lack of power boat use and low fetch distance of the lake, and absence of human structures or resources within 25 feet of the shoreline, though the wetland has potential to reduce shoreline erosion with the presence scrub-shrub lakeshore vegetation. Finally, habitat functions scored moderately well due to some diversity in vegetation structure and plant species and special habitat features including the presence of large, woody debris, standing snags, and thin-stemmed persistent vegetation, all of which provide habitat potential. Reasonably intact buffers and good connectivity to relatively undisturbed areas lends high landscape potential. It should be noted that the wetland's HGM class limits the maximum possible score for wetland functions.

The wetland units are all located within a section/township/range, which contains a natural heritage wetland (accessed from the DNR WHNP website); however, they do not feature any mapped presence of state-listed threatened or endangered plant species, so they do not qualify as natural heritage wetlands.

3.2.3 Uplands

Uplands within the Study Area consist of grass-dominated pasture and deciduous forest. Upland areas are generally above elevations of 15.5 feet NAVD88 and cover 105.75 acres within the Study Area. Upland areas are not subject to overbank flooding or groundwater inundation except for extreme high water events, but fluctuating groundwater levels driven by the proximity to large water bodies may affect soil and vegetation characteristics.

Soils are very dark gray (10 YR 3/1) to dark grayish brown (10 YR 3/2) in color and, in some cases, feature depleted matrices, meeting Corps wetland hydric soil indicator criteria for depleted below dark surface (A11) or depleted matrix (F3). Depleted matrix colors are dark gray (10 YR 4/1) to dark grayish brown (10 YR 4/2) to gray (10 YR 5/1) to grayish brown (10 YR 5/2) and feature common to many yellow-red redoximorphic concentrations. Although soils in uplands met hydric soil criteria, they were determined to occur in uplands due to the lack of hydrophytic vegetation and wetland hydrology indicators. The hydric soil indicators observed are presumed to be relic features that indicate wetland areas were larger prior to upstream damming on the rivers associated with the Site and the construction of the onsite levee system. Soil textures range from silt loam to sandy loam to sand.

Vegetation includes the following habitat types (shown in Figures 3-5a and 3-5b):

Colonial Bentgrass – Perennial Ryegrass Pasture

This pastureland community occurs in the northern section of the Study Area throughout the Lower and Upper Front Fields and upper sections of Lake Field, covering 25.09 acres. It is heavily grazed and features high cover of weedy species. It is dominated by colonial bentgrass and perennial ryegrass with meadow brome (*Bromus commutatus*; UPL), hairy cat's ear, and common plantain occurring as sub-dominants; and velvetgrass, sweet vernalgrass (*Anthoxanthum odoratum*; FACU), and red clover (*Trifolium pratense*; FACU) occurring occasionally.

Colonial Bentgrass – Tall Fescue – Velvetgrass Pasture

This pastureland community co-occurs with the Colonial Bentgrass – Perennial Ryegrass Upland Pasture community throughout the Lower and Upper Front Fields and occurs along the upper

portions of Petty Field. It covers 42.09 acres and is both heavily grazed and mown regularly. It is similar in species composition to the Colonial Bentgrass – Velvetgrass Palustrine Emergent wetland community, except it features tall fescue as a co-dominant as well as commonly occurring upland pasture grass species such as orchardgrass (*Dactylis glomerata*; FACU) and sweet vernalgrass, and weedy upland forbs such as wild carrot, hairy cat's ear, common plantain and red clover. Water smartweed is also common within this community.

Bigleaf Maple – Douglas Fir/Hazelnut Forest

This forest community occurs as a narrow margin along the western boundary of the Study Area where the topography transitions from floodplain to basalt hillside, covering 2.24 acres. It is associated with Olympic very stony clay loam soils. It consists of a mid seral-to-mature overstory of bigleaf maple (*Acer macrophyllum*; FACU) and Douglas fir (*Pseudotsuga menziesii*; FACU) interspersed occasionally with black cottonwood, with a well-developed understory dominated by hazelnut (*Corylus cornuta*; FACU), snowberry, and trailing blackberry, along with commonly occurring Indian plum and red elderberry (*Sambucus racemosa*; FACU), western swordfern (*Polystichum munitum*; FACU), blue wildrye (*Elymus glaucus*; FACU), herb-Robert (*Geranium robertianum*; UPL), and sweet cicely dominate the herbaceous layer.

Black Cottonwood – Oregon Oak/Himalayan Blackberry Forest

This upland forest community occurs along the eastern boundary of the Study Area where the topography rises into hillside and railway ballast and is associated with Washougal stony loam soils. It consists of an Oregon oak and black cottonwood dominated overstory interspersed occasionally with Oregon ash and Douglas fir. The shrub layer is dominated by Himalayan blackberry and includes snowberry, trailing blackberry, western serviceberry (*Amelanchier alnifolia*; FACU), black hawthorn, oceanspray (*Holodiscus discolor*; FACU), and cascara (*Frangula purshiana*; FAC); the herbaceous layer includes sweet vernalgrass and wild carrot. This community covers 8.34 acres.

Oregon Oak/Douglas Fir – Snowberry Upland Forest

This upland community occurs throughout the Middle Lands and is described in detail in Section 3.1.7. It covers 25.88 acres within the Study Area.

3.2.4 Other Waters

Other waters within the Farm Fields and Lancaster Lake Study Area include Lancaster Lake (Cowardin classes: lacustrine unconsolidated bottom, diked/impounded semipermanently-tidally flooded and permanently-tidally flooded [LUBTh and LUBVh]) and 2.94 miles of ditches

(Cowardin class palustrine aquatic bottom, semipermanently flooded, excavated [PABFx]). Lancaster Lake is an artificial impoundment of Gee Creek surface and groundwater inputs created by the construction of a levee. Water level in the lake is regulated by a tidegate installed within the levee along Gee Creek. Lancaster Lake is identified as "likely to qualify" as a Shoreline of the State according to the Ecology SMP Handbook (Ecology 2012). It does not qualify as a TNW, but because it maintains a surface connection with a waterway that flows directly into a TNW (Gee Creek), it is regulated under federal jurisdiction.

The ditches (shown in Figure 1-3) have been excavated from wetlands (with the exception of the upper ends of the northernmost ditches) to drain the area for agricultural use and all flow into Lancaster Lake. Ditches vary in width from 6 to 15 feet and in depth from 2 to 5 feet. Ditches in the northern section of the Study Area are completely vegetated with seasonal flow periods; ditches in the southern section of the Study Area feature indicators of OHWM and have relatively permanent flows (flows for at least 3 months out of the year). All ditches within the Study Area will be regulated as part of the wetland with the exception of the upper ends of the northernmost ditches, which are completely vegetated, flow intermittently, and have been excavated from uplands.

3.3 Gee Creek - South Backwater Study Area

One wetland was identified within the Study Area, encompassing much of it. The mapped wetland area along with data plot and photo point locations are shown on Figure 3-7, wetland rating forms are provided in Appendix B, and photographs of wetland areas are included in Appendix C.

3.3.1 Wetland 3

Wetland 3 occupies 68.73 acres of broad, low-lying floodplain and channel areas along a backwater of Gee Creek between the Narrows at the levee impounding Lancaster Lake and the main Gee Creek channel to the centerline, which serves as the Study Area boundary. The wetland ranges in elevation from 8 to 13 feet NAVD88 and supports long-duration inundation by Gee Creek flows and backwater effects from the Columbia River. The wetland is bounded by the Middle Lands to the north, basalt outcrop and railway embankment to the east, the Ridgefield National Wildlife Refuge to the south, and Gee Creek to the west. Basalt outcrops also protrude into the wetland and form scattered isolated upland "mounds" which support oak and dry prairie vegetation (commonly referred to as "oak balds") throughout it, creating sharp transitions from wetland to upland. The Middle Lands separate Wetland 3 geographically from Wetland 1 of the Lewis River and Gee Creek Study Area to the west, though, during very low

water, a narrow strip of emergent reed canarygrass and wapato may briefly connect the two. Wetland 3 is categorized as a riverine HGM class. It is subjected to seasonal-tidal inundation by Gee Creek flows and consists of PFO1C, PSS1C, PEMC, and riverine, non-persistent emergent, semipermanent-tidal (R1EM2T) Cowardin classes.

Hydrology

Primary hydrological indicators were observed throughout Wetland 3. These included surface water (A1), high water table (A2), saturation (A3), sediment deposits (B2), drift deposits (B3), and inundation visible on an aerial image (B7).

Soils

Soil data in Wetland 3 meet Corps hydric soil indicator criteria for depleted matrix (F3). Dark soil matrix colors are very dark grayish brown (10 YR 3/2 and 7.5 YR 3/2) to very dark brown (10 YR 2/2 and 7.5 YR 2.5/2) and depleted matrix colors are dark gray (10 YR 4/1) to dark grayish brown (10 YR 4/2) to grayish brown (10 YR 5/2). Soil matrices feature common to many distinct to prominent yellow-red redoximorphic features and common depletions. In some instances, black (10 YR 2/1) organic matter was observed coating soil peds. Soil textures range from silt loam to silty clay loam.

Vegetation

Vegetation communities within the wetland include forested, scrub-shrub, and emergent communities, which are described in detail below and shown on Figure 3-8.

Wapato - Creeping Spikerush Riverine Non-Persistent Emergent

This community occupies the low-lying floodplain and channel areas that are inundated throughout much of the year; vegetation is absent during winter/spring high water periods. The community is characterized by extensive wapato beds intermixed with creeping spikerush and swamp smartweed with rice cutgrass (*Leersia oryzoides*; OBL) and reed canaygrass occurring occasionally. The community features a Cowardin class of R1EM2T and covers 27.08 acres.

Reed Canarygrass Palustrine Emergent

This community occupies areas that are slightly higher in elevation than the wapato - creeping spikerush community, receiving a somewhat shorter duration of inundation. It covers a large area in the southwestern section of the wetland and forms a narrow fringe between the wapato beds and forest vegetation classes in the rest of the wetland. Similar to the reed canarygrass community found in Wetland 3, it is composed primarily of reed canarygrass interspersed

occasionally with wapato, rice cutgrass, woolgrass (*Scirpus cyperinus*; OBL), swamp smartweed, creeping Jenny, and nodding beggar's tick (*Bidens cernua*; OBL). The community features a Cowardin Class of PEMC and occupies 13.11 acres.

Pacific Willow/Reed Canarygrass Palustrine Scrub-shrub

This community occurs in several patches scattered throughout Wetland 3. It is composed of a Pacific willow overstory and a reed canarygrass understory; creeping Jenny and swamp smartweed occur occasionally. It remains saturated-to-inundated throughout much of the growing season. The community features a Cowardin Class of PEMC and occupies 6.93 acres.

Oregon Ash/Reed Canarygrass Palustrine Forested

This community occurs as a narrow band where the wetland-to-upland transition is more gradual. In some cases, the community grows directly on the lower slopes of basalt outcrops. The community consists of an open-to-closed Oregon ash canopy with occasional Pacific willows, Nootka rose, and black hawthorn, and an understory of reed canarygrass interspersed with creeping Jenny, slough sedge, and small-flowered bedstraw. This community is subjected to seasonal inundation and year-round saturation and features a Cowardin classification of PFO1C; it occupies a total area of 9.39 acres.

3.3.2 Wetland Rating Category, Functions, and Buffers

Wetland 3 was divide into two rating units separated by an expanse of Gee Creek measuring greater than 50 feet wide (Figure 3-9). Unit 3a occupies a narrow wetland bench along the north bank of the Gee Creek backwater and the Narrows and rated as a Category II. Unit 3b covers the broad floodplain and channels areas to the south of the Narrows, including the backwater, and rated as a Category I. Units 3a and 3b are each accorded a buffer width of 130 feet due to their habitat function scores. Rating results for each wetland unit are shown in Table 3.3.

Table 3.3. Wetland Ratings for Wetlands 3 and 4

Wetland Unit	Water Quality	Hydrology	Habitat	Total Function Score	Final Rating	Clark County Buffer Width – Low Intensity Land Use
3a	7	7	8	22	II	130 feet
3b	8	8	8	24	I	130 feet

Units 3a and 3b are determined to be riverine HGM classes and scored similarly. Both units rated well with regard to water quality and hydrologic functions based on the high cover of shrubs and

trees, and location in a basin with development and 303(d) listed streams. Unit 3b features more Site potential than Unit 3a due to a greater abundance of surface depressions to trap sediment and higher water storage capacity (larger stream/wetland ratio). The landscape potential of both units is somewhat limited, however, by the relatively undisturbed condition of their surroundings. Both units offer high habitat quality, featuring multiple vegetation structures, hydroperiods, special habitat features, and good habitat interspersion. Their intact buffers and good connectivity to other habitats confers high landscape potential and the presence of WDFW Priority Species and Habitats confers high value.

Both units are all located within a section/township/range, which contains a natural heritage wetland (accessed from the DNR WHNP website); however, they do not feature any mapped presence of state-listed threatened or endangered plant species, so they do not qualify as natural heritage wetlands.

3.3.3 Other Waters

Two small streams were identified within the Gee Creek - South Backwater Study Area, draining into the wetland from the east. Stream 1 is approximately 2 feet wide and approximately 6 inches deep at bankfull; Stream 2 is 1 to 1.5 feet wide and less than 6 inches deep at bankfull. Both streams featured flowing water during the time of fieldwork. Vegetation along the streams was primarily upland and included Himalayan blackberry, trailing blackberry, and snowberry. Streams featured fairly defined bed and banks, as well as evidence of scour, indicating that they are likely relatively permanent waters (flowing for at least three months out of the year), though they do not appear to be perennial based on their small size and weak indicators. Because of their size and flow status, they most likely do not support any fish use, thus qualify as Type Ns streams and are accorded a County-regulated buffer of 75 feet measured out from the OHWM (Section 40.440.010[C] of the County code). In addition, as they are relatively permanent and flow indirectly into a TNW, they present a significant nexus for Corps and Ecology jurisdiction.

3.3.4 Uplands

Uplands in the Gee Creek - South Backwater Study Area include steeply-sloped basalt outcrops occurring as protrusions and isolated mounds within the wetlands, as well as the basalt slopes of the Middle Lands along the northern boundary of the Study Area. Soils matrix colors are black (10 YR 2/1), very dark gray (10 YR3/1), dark brown (10 YR 3/3 and 7.5 YR 3/2), and dark reddish brown (5 YR 3/3); some samples featured a lower layer of dark grayish brown (10 YR 4/2) matrix color. Soil textures are silt loam to silty clay loam to clay loam and are generally underlain by basalt bedrock within a few inches of the surface, which inhibited the complete

excavation of several soil pits. Vegetation consists of the following communities (shown on Figure 3-8):

Oregon Oak – Douglas Fir/Snowberry Forest

This community occurs within the Middle Lands and along the eastern margins of the Study Area and occupies 33.86 acres within the Study Area. It includes an overstory of Oregon Oak interspersed with Douglas fir, Oregon ash, and bigleaf maple with a well-developed shrub layer of snowberry, Himalayan blackberry, blackcap raspberry, serviceberry (*Amelanchier alnifolia*; FACU), Oregon grape (*Mahonia nervosa*; NOL), oceanspray (*Holodiscus discolor*; FACU) , oval-leaved viburnum (*Viburnum ellipticum*; NOL), trailing blackberry, and poison oak (*Toxicodendron diversilobum*; NOL). The herbaceous layer commonly features western swordfern, cleavers, herb-Robert (*Geranium robertianum*; NOL), miner's lettuce (*Claytonia perfoliata*; FAC), oak fern, St. John's wort, sweet vernal grass, and orchardgrass.

Oregon Oak/Snowberry-Himalayan Blackberry/Mixed Grass Forest

This community occurs on the basalt "mounds" within the Study Area and occupies 19.66 acres of the Study Area. It features an overstory of Oregon oak interspersed with Oregon ash and a shrub layer dominated by Himalayan blackberry and snowberry, along with oval-laved viburnum. The understory is composed predominantly of weedy grass species including creeping bentgrass, dogtail grass (*Cynosurus echinata*; NOL), cheatgrass (*Bromus tectorum*; NOL), velvetgrass, sweet vernalgrass and orchargrass along with weedy forbs such as St. John's wort, wild carrot, self-heal, mullein, chickweed (*Stellaria media*; FACU), dovefoot Geranium (*Geranium molle*; NOL), and dissected Geranium (*Geranium dissectum*; NOL).

4 Conclusions

Cascade Environmental Group, LLC delineated five wetlands totaling 595.93 acres within Plas Newydd Farm, which was divided into three separate Study Areas due to differing ecological conditions. Results are summarized in Table 4.1 below. The Lewis River and Gee Creek Study Area occurs in the floodplain of the Columbia and Lewis rivers and Gee Creek; the Farm Fields and Lancaster Lake Study Area occurs in a levee-protected Lewis River floodplain that no longer experiences overbank flooding except during major flood events, but is highly influenced by Columbia River groundwater/hyporheic influence; and the Gee Creek - South Backwater Study Area occurs in along a backwater of Gee Creek and encompasses steep basalt slopes. Wetlands in the Lewis River and Gee Creek and Farm fields and Lancaster Lake Study Areas occurred below 15.5 feet NAVD88 elevation (with the exception of Wetlands 4 and 5, associated with the slopes of the Middle Lands) and wetlands in the Gee Creek - South Backwater Study Area occurred below 13 feet NAVD88, a factor of steep, rocky adjacent slopes that do not allow for the formation of wetlands at intermediate elevations.

Three wetlands were identified within the Lewis River and Gee Creek Study Area (Wetlands 1, 4, and 5). Wetland 1 totals 244.27 acres. In addition, a wetland/upland mosaic area was identified occurring at a 60%/40% ratio between elevations 15.5 and 17 feet NAVD88, totaling 30.28 acres. Wetland 1 is divided into three rating units (Unit 1a, Unit 1b, and Unit 1c); all three units rated as Category I with special characteristics.

Unit 1a includes a mix of forested, scrub-shrub, emergent and open water areas. Tree and shrub species are mostly native species; understory and emergent vegetation is a mix of native and nonnatives. The unit includes a series of ridges oriented parallel to the Lewis River channel; ridges at higher elevations support mosaic and upland communities. In between the ridges are low swales or channels, supporting emergent or shrub vegetation, or open water. Portions of the channel have been filled intentionally with Columbia River dredge sand or sediment accumulated through current geomorphic process. The open water areas are connected to the Lewis River during higher river flows during winter and spring, but become separated as river flows drop during summer. Habitat interspersion is high due to the complex of floodplain features and the vegetation communities. Unit 1a is accorded a buffer width of 150 feet per County Wetland Protection ordinance (Ordinance No. 2006-05-027; Chapter 40.450).

Unit 1b is separated from Unit 1a by a ridge, which routes flows toward Gee Creek at lower flows. Surface flows in 1b are controlled by a series of dams that were installed to manage much

of the wetland unit for waterfowl hunting. The first structure was constructed in the 1960's, and two additional structures were constructed in the 19080's. Flows have been managed to prolong and enhance waterfowl hunting, typically water levels were controlled during wetter months. During summer draw-down, wooden planks used to control water depth were removed to allow the Site to drain. The dams reduce the unit's live storage capacity by maintaining full basins; basins behind the dams are low elevation and support emergent vegetation communities that tolerate long-duration inundation, such as wapato, spikerush, and sedges. The basin is formed by the natural levees of the Gee Creek streambank, the ridge dividing Units 1a and 1b, and the basalt upland Middle Lands area. Unit 1b is accorded a buffer width of 130 feet.

Unit 1c is free of impoundments, separated from Unit 1b by a rockfill and flashboard dams. It is also accorded a buffer width of 130 feet

Wetlands 4 and 5 are small wetlands located along the lower western slope of the Middle Lands; they measure 0.04 and 0.22 acres, respectively. The wetlands both rated as Category III wetlands, and though they merit a standard buffer width of 75 feet, due to their very small size, the buffer was reduced to the minimum width necessary to protect their water quality functions (40 feet).

Three Type S streams occur in the Lewis River and Gee Creek Study Area: Gee Creek, the Columbia River, and the Lewis River, which includes an associated slough, which flows through the wetland. The Columbia and Lewis rivers are also designated TNWs. A 250-foot buffer is associated with all Type S streams per County Habitat Protection Ordinance (Chapter 40.440).

One wetland (Wetland 2), totaling 252.39 acres, was identified within the Farm Fields and Lancaster Lake Study Area. The wetland is divided into three rating units (Unit 2a, Unit 2b, and Unit 2c) based on the presence of large ditches that establish hydrological breaks between wetland units. All three rating units are impounded by a levee that blocks flows between Wetland 2 and Gee Creek. Units 2a and 2b rated a Category III and Unit 2c rated a Category II. Units 2a and 2b are mostly pasture areas but do include small forested and scrub shrub communities; hydrological variability is limited to subtle topographic changes and large ditches running both across and down slopes. Unit 2c includes Lancaster Lake and larger woody species communities. The emergent and forested areas surrounding Lancaster Lake are long-duration seasonally inundated, often remaining inundated through June.

Wetland 2 is adjacent (although separated by levees) to two Type S streams: the Lewis River and Gee Creek, and includes Lancaster Lake, which is identified as potentially qualifying as a Type S water. The Lewis River is also a designated TNW. A 250-foot buffer is associated with the

streams. There are also 2.94 miles of ditches within the Study Area, excavated from the wetland, which are regulated as part of it.

One wetland (Wetland 3) was identified in the Gee Creek - South Backwater Study Area, totaling 68.73 acres. Wetland 3 is divided into two rating units (Unit 3a and unit 3b) by an expanse of open water measuring greater than 50 feet wide. Unit 3a rated as Category II and Unit 3b rated as Category I; each unit is accorded a 130-foot wide buffer according to County ordinance based on their similar habitat score.

Wetland 3 is adjacent to Gee Creek (Gee Creek segment was included as a component of Wetland 3 in this delineation), a Type S stream meriting a 250-foot wide County buffer. Two small Type Ns streams (Stream 1 and Stream 2) were also identified in the Study Area, draining into Wetland 3 from the east. They are each accorded a buffer of 75 feet per County Ordinance,

Table 4.1. Wetland Delineation Results Summary Table

Wetland	Rating Unit	Category	HGM	Cowardin Class	Acreage
1	1a	I	riverine	PEMA, PEMC, PFO1A, PFO1C, PSS1C, R1EMR, R1UBV	133.17
	1b	I	riverine	PEMA, PEMC, PEMKh, PFO1A, PFO1C, PSS1C, PUBKh, R1UBV	134.94
	1c	I	riverine	PEMC, PFO1A, PFO1C, PSS1C, R1UBV	6.44
Wetland 1 Total					**274.55**
2	2a	III	slope	PEMAd, PEM1Fx, PEMCx, PSS1Cd	12.35
	2b	III	slope	PEMAd, PEMCd, PFO1Ad, PSS1Cd	34.69
	2c	II	lacustrine	LUBTh, LUBVh, PABFx, PEM1Fh, PEMAd, PEMCd, PFO1Ad, PSS1Cd	205.35
Wetland 2 Total					**252.39**
3	3a	II	riverine	PEMC, PFO1C, R1EM2T	7.14
	3b	I	riverine	PEMC, PFO1C, PSS1C, R1EM2T, R1UBV	61.60
Wetland 3 Total					**68.73**
4		III	slope	PFO1B	**0.04**
5		III	slope	PFO1B	**0.22**

Wetland	Rating Unit	Category	HGM	Cowardin Class	Acreage
Grand Total					**595.93**

It is expected that the County, as well as the Corps and Ecology, will regulate the identified wetlands; the streams come under both state and federal jurisdiction. The stream and wetland buffer areas will be regulated by the County.

This report documents the best professional judgment and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at one's own risk until it has been reviewed and approved in writing by the U.S. Army Corps of Engineers, the Washington State Department of Ecology, and Clark County.

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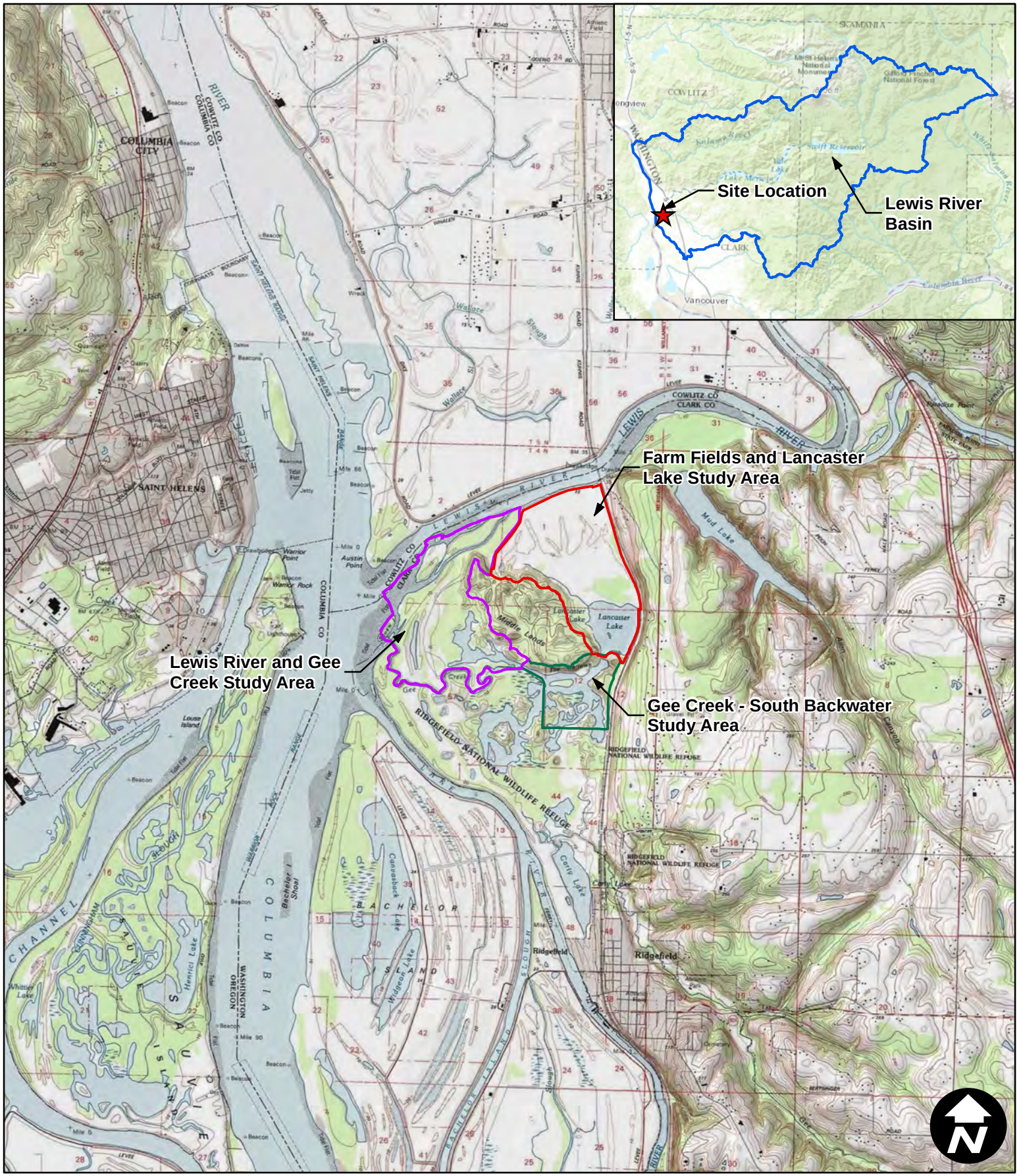
Figures



Date: 5/2/2016
Scale: 1 inch = 1 mile
Data Source: ESRI, 2016; USGS, National Hydrography Dataset, 2013.

Figure 1-1. Vicinity Map

CASCADE ENVIRONMENTAL GROUP

0 0.5 1 Miles

Legend

- Study Area Boundary (372.72 acres)
- Public Land Survey Boundaries
- County Boundary
- Tax Lots
- Access Roads
- Levees

Habitat Water Control System

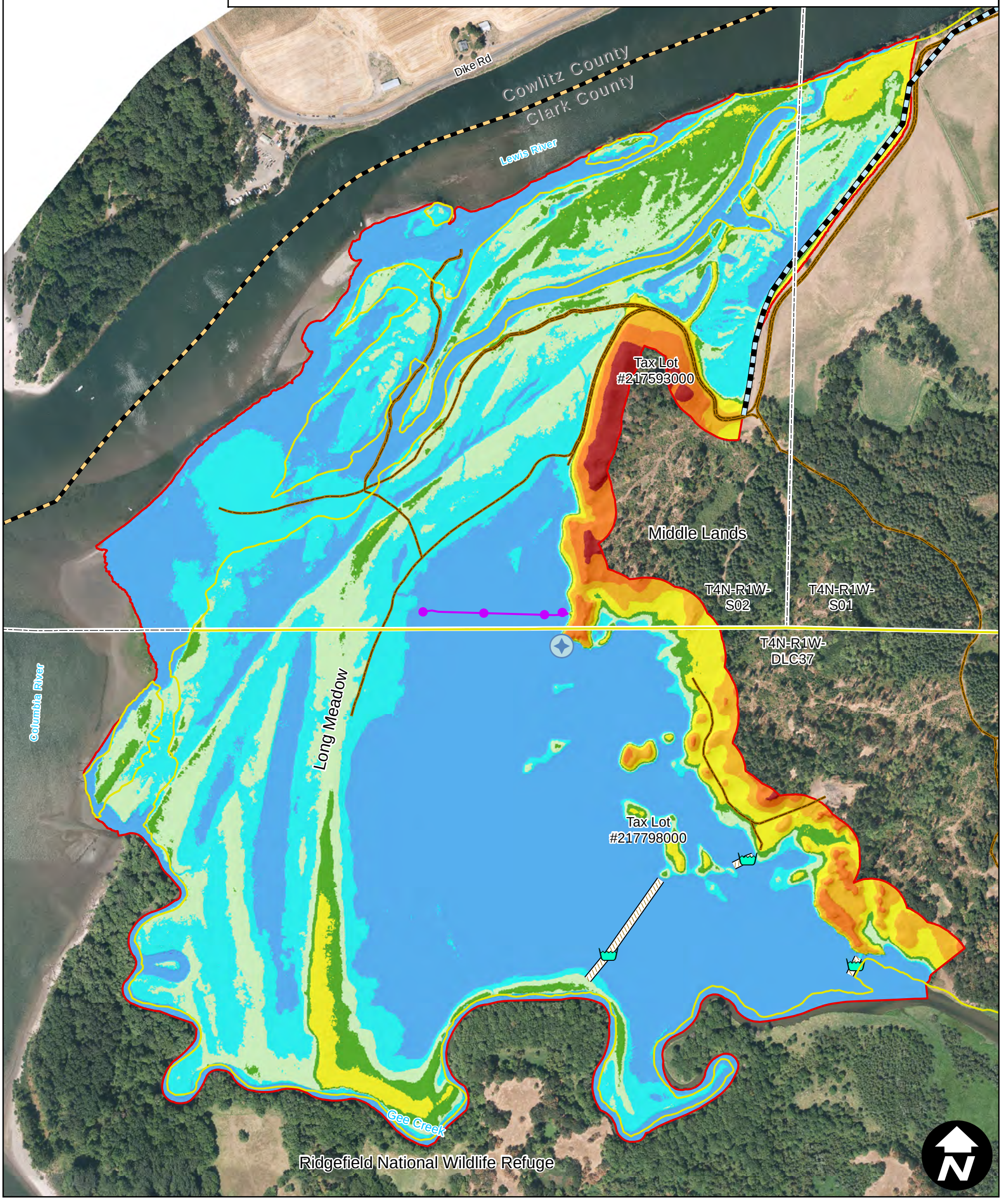
- Flashboard Dam
- Rock Fill Dam

Off Channel Watering System

- Water Pipe
- Overfill Drain

Elevation: Ft. NAVD88

- 6.2 - 8.5
- 8.6 - 11
- 11.1 - 13.5
- 13.6 - 16
- 16.1 - 18.5
- 18.6 - 21
- 21.1 - 30
- 30.1 - 45
- 45.1 - 75
- 75.1 - 105.3



Date: 11/17/2016

Scale: 1 inch = 550 feet

Data Source: ESRI, 2016; GeoTerra, 2016; Clark County GIS, 2013; Plas Newydd Farm, 2016

Figure 1-2. Lewis River and Gee Creek Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report

Legend

- Study Area Boundary (358.14 acres)
- Public Land Survey Boundaries
- County Boundary
- Tax Lots
- Access Roads
- Levees
- Ditches
- Railroad
- Tidegate
- Drainage
- Culverts

Off Channel Watering System

- Trough
- Water Pipe

Elevation: Ft. NAVD88

- 6.2 - 8.5
- 8.6 - 11
- 11.1 - 13.5
- 13.6 - 16
- 16.1 - 18.5
- 18.6 - 21
- 21.1 - 30
- 30.1 - 45
- 45.1 - 75
- 75.1 - 105.3

Cowlitz County
Clark County
Lewis River
Upper
Lower
Petty
Willow
Lake
Tax Lot # 217593000
BNSF Railway
NW Lancaster Rd
Tax Lot # 217595000
Tax Lot # 218005000
Tax Lot # 218030000
Tax Lot # 218003000
Drainage into study site
T4N-R1W-S02
T4N-R1W-S01
Middle Lands
T4N-R1W-DLC37
T4N-R1W-S12
Lancaster Lake
Tax Lot # 218004000
The Narrows
Gee Creek
N

Date: 11/17/2016

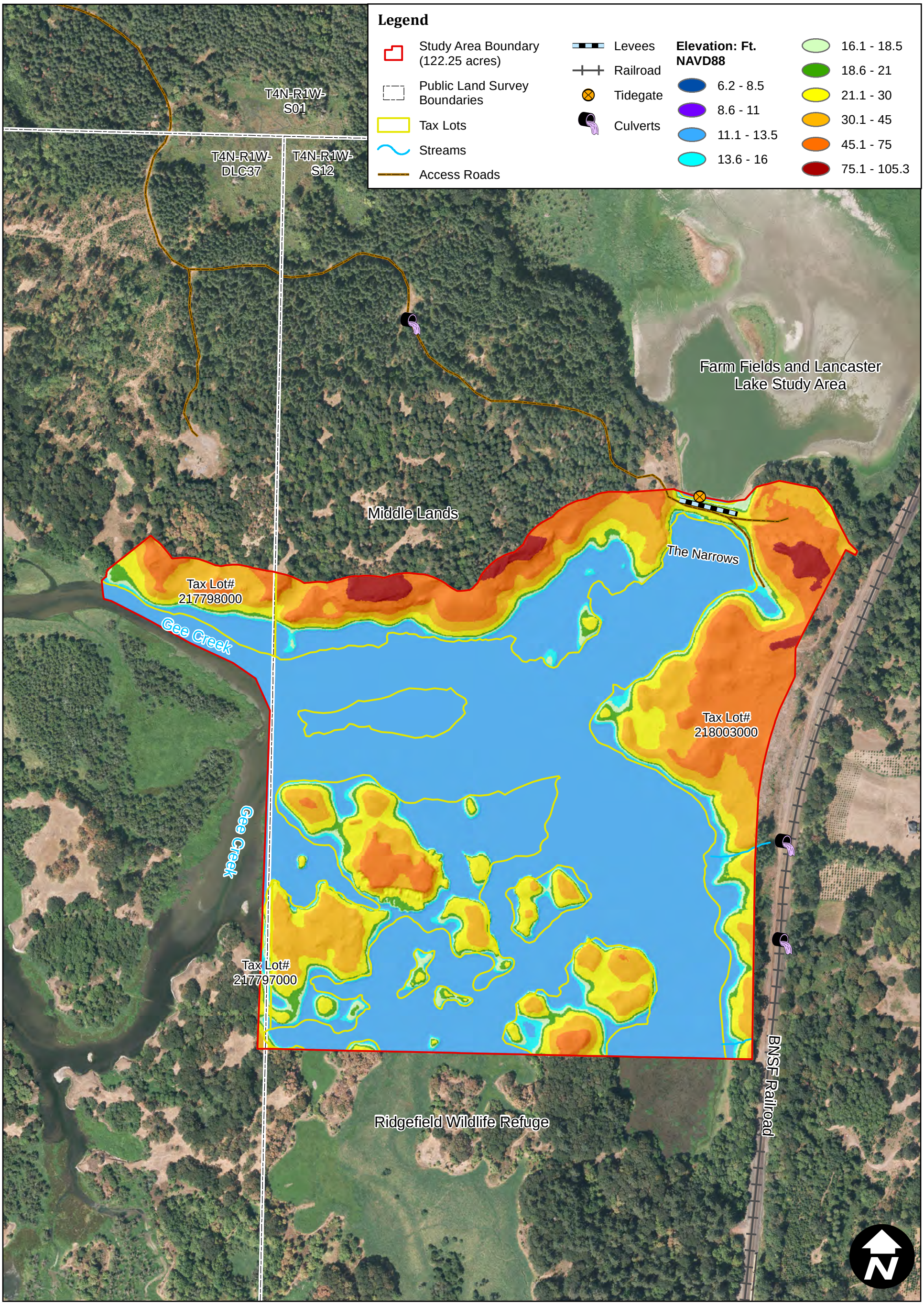
Scale: 1 inch = 550 feet

Data Source: ESRI, 2016, GeoTerra, 2016; Clark County GIS, 2013; Plas Newydd Farm, 2016

Figure 1-3. Farm Fields and Lancaster Lake Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet



Date: 11/17/2016

Scale: 1 inch = 400 feet

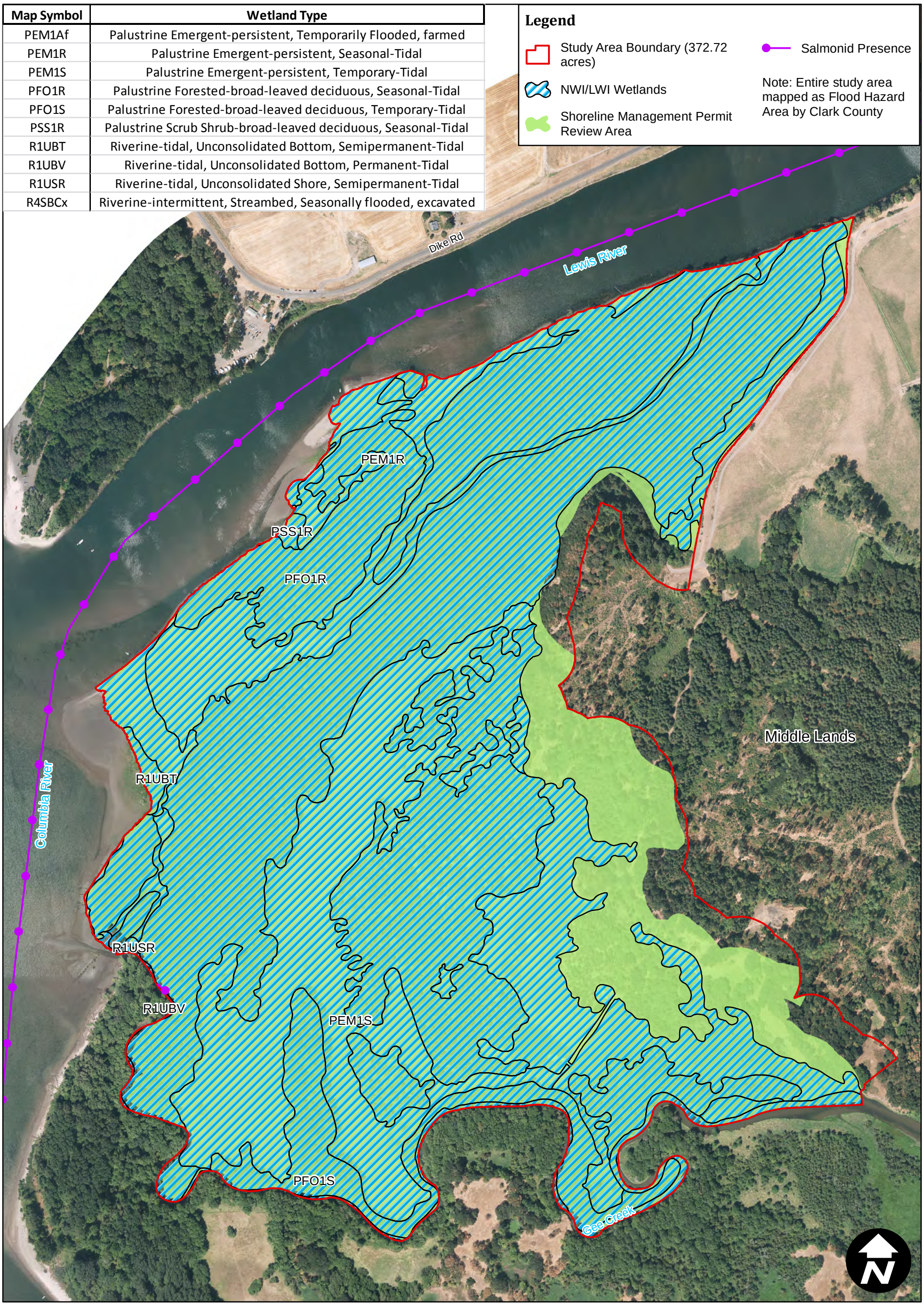
Data Source: ESRI, 2016; GeoTerra, 2016; Clark Coundy GIS, 2013

Figure 1-4. Gee Creek - South Backwater Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Map Symbol	Wetland Type
PEM1Af	Palustrine Emergent-persistent, Temporarily Flooded, farmed
PEM1R	Palustrine Emergent-persistent, Seasonal-Tidal
PEM1S	Palustrine Emergent-persistent, Temporary-Tidal
PFO1R	Palustrine Forested-broad-leaved deciduous, Seasonal-Tidal
PFO1S	Palustrine Forested-broad-leaved deciduous, Temporary-Tidal
PSS1R	Palustrine Scrub Shrub-broad-leaved deciduous, Seasonal-Tidal
R1UBT	Riverine-tidal, Unconsolidated Bottom, Semipermanent-Tidal
R1UBV	Riverine-tidal, Unconsolidated Bottom, Permanent-Tidal
R1USR	Riverine-tidal, Unconsolidated Shore, Semipermanent-Tidal
R4SBCx	Riverine-intermittent, Streambed, Seasonally flooded, excavated



Date: 7/22/2016

Scale: 1 inch = 550 feet

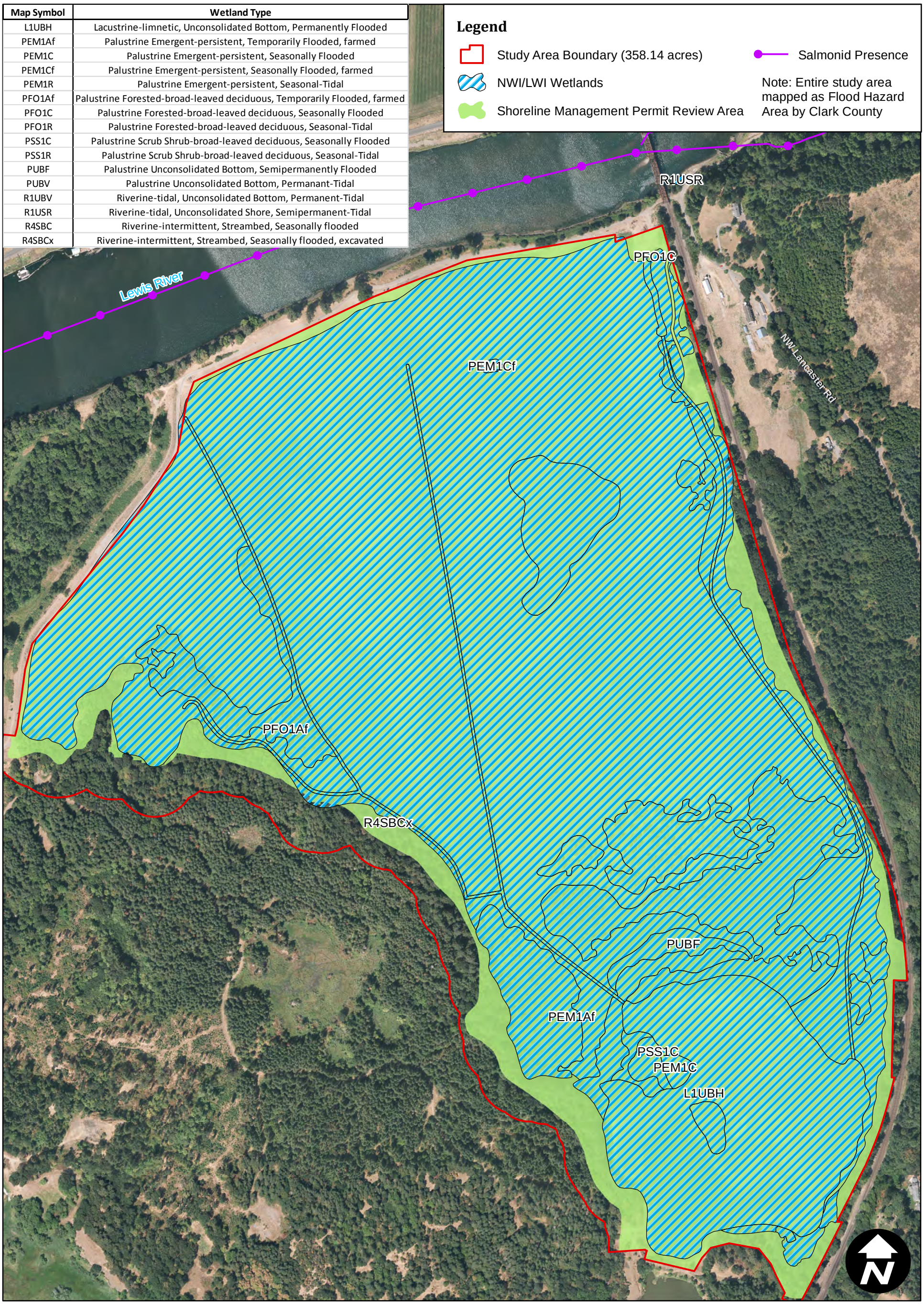
Data Source: GeoTerra, 2015; Clark County GIS, 2013; USFWS, National Wetland Inventory, 2014

Figure 2-1. Wetland Inventory and Aquatic Areas: Lewis River and Gee Creek

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Map Symbol	Wetland Type
L1UBH	Lacustrine-limnetic, Unconsolidated Bottom, Permanently Flooded
PEM1Af	Palustrine Emergent-persistent, Temporarily Flooded, farmed
PEM1C	Palustrine Emergent-persistent, Seasonally Flooded
PEM1Cf	Palustrine Emergent-persistent, Seasonally Flooded, farmed
PEM1R	Palustrine Emergent-persistent, Seasonal-Tidal
PFO1Af	Palustrine Forested-broad-leaved deciduous, Temporarily Flooded, farmed
PFO1C	Palustrine Forested-broad-leaved deciduous, Seasonally Flooded
PFO1R	Palustrine Forested-broad-leaved deciduous, Seasonal-Tidal
PSS1C	Palustrine Scrub Shrub-broad-leaved deciduous, Seasonally Flooded
PSS1R	Palustrine Scrub Shrub-broad-leaved deciduous, Seasonal-Tidal
PUBF	Palustrine Unconsolidated Bottom, Semipermanently Flooded
PUBV	Palustrine Unconsolidated Bottom, Permanant-Tidal
R1UBV	Riverine-tidal, Unconsolidated Bottom, Permanent-Tidal
R1USR	Riverine-tidal, Unconsolidated Shore, Semipermanent-Tidal
R4SBC	Riverine-intermittent, Streambed, Seasonally flooded
R4SBCx	Riverine-intermittent, Streambed, Seasonally flooded, excavated



Date: 7/22/2016

Scale: 1 inch = 500 feet

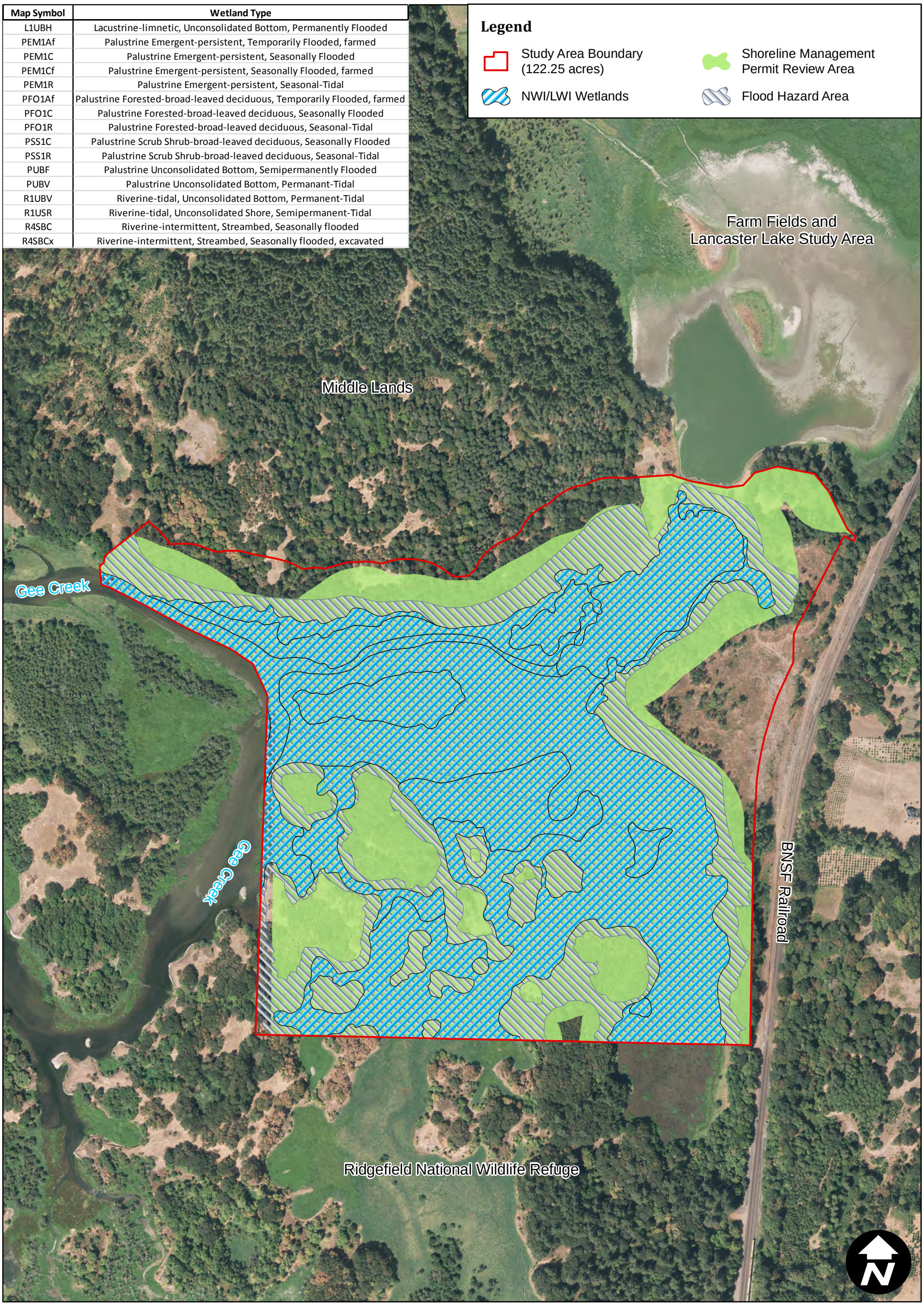
Data Source: GeoTerra, 2015; Clark County GIS, 2013; USFWS, National Wetland Inventory, 2014.

Figure 2-2. Wetland Inventory and Aquatic Areas: Farm Fields and Lancaster Lake

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Map Symbol	Wetland Type
L1UBH	Lacustrine-limnetic, Unconsolidated Bottom, Permanently Flooded
PEM1Af	Palustrine Emergent-persistent, Temporarily Flooded, farmed
PEM1C	Palustrine Emergent-persistent, Seasonally Flooded
PEM1Cf	Palustrine Emergent-persistent, Seasonally Flooded, farmed
PEM1R	Palustrine Emergent-persistent, Seasonal-Tidal
PFO1Af	Palustrine Forested-broad-leaved deciduous, Temporarily Flooded, farmed
PFO1C	Palustrine Forested-broad-leaved deciduous, Seasonally Flooded
PFO1R	Palustrine Forested-broad-leaved deciduous, Seasonal-Tidal
PSS1C	Palustrine Scrub Shrub-broad-leaved deciduous, Seasonally Flooded
PSS1R	Palustrine Scrub Shrub-broad-leaved deciduous, Seasonal-Tidal
PUBF	Palustrine Unconsolidated Bottom, Semipermanently Flooded
PUBV	Palustrine Unconsolidated Bottom, Permanant-Tidal
R1UBV	Riverine-tidal, Unconsolidated Bottom, Permanent-Tidal
R1USR	Riverine-tidal, Unconsolidated Shore, Semipermanent-Tidal
R4SBC	Riverine-intermittent, Streambed, Seasonally flooded
R4SBCx	Riverine-intermittent, Streambed, Seasonally flooded, excavated



Date: 7/22/2016

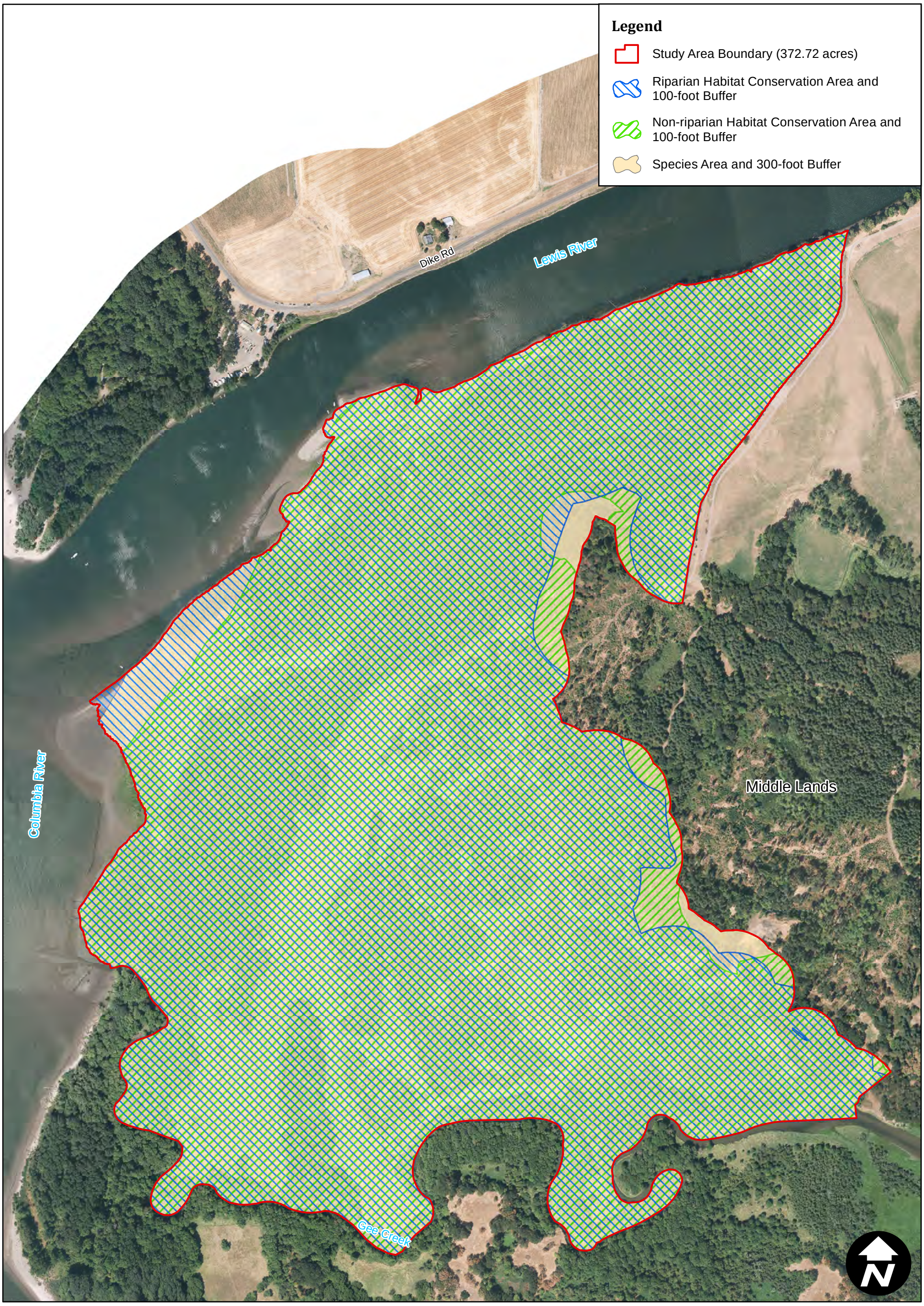
Scale: 1 inch = 400 feet

Data Source: GeoTerra, 2015; Clark County GIS, 2013; USFWS, National Wetland Inventory, 2014

Figure 2-3. Wetland Inventory and Aquatic Areas: Gee Creek - South Backwater

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet



Date: 7/22/2016

Scale: 1 inch = 550 feet

Data Source: GeoTerra, 2015; Clark County GIS, 2013

Figure 2-4. Clark County Habitat Conservation Critical Areas: Lewis River and Gee Creek

Date: 7/22/2016

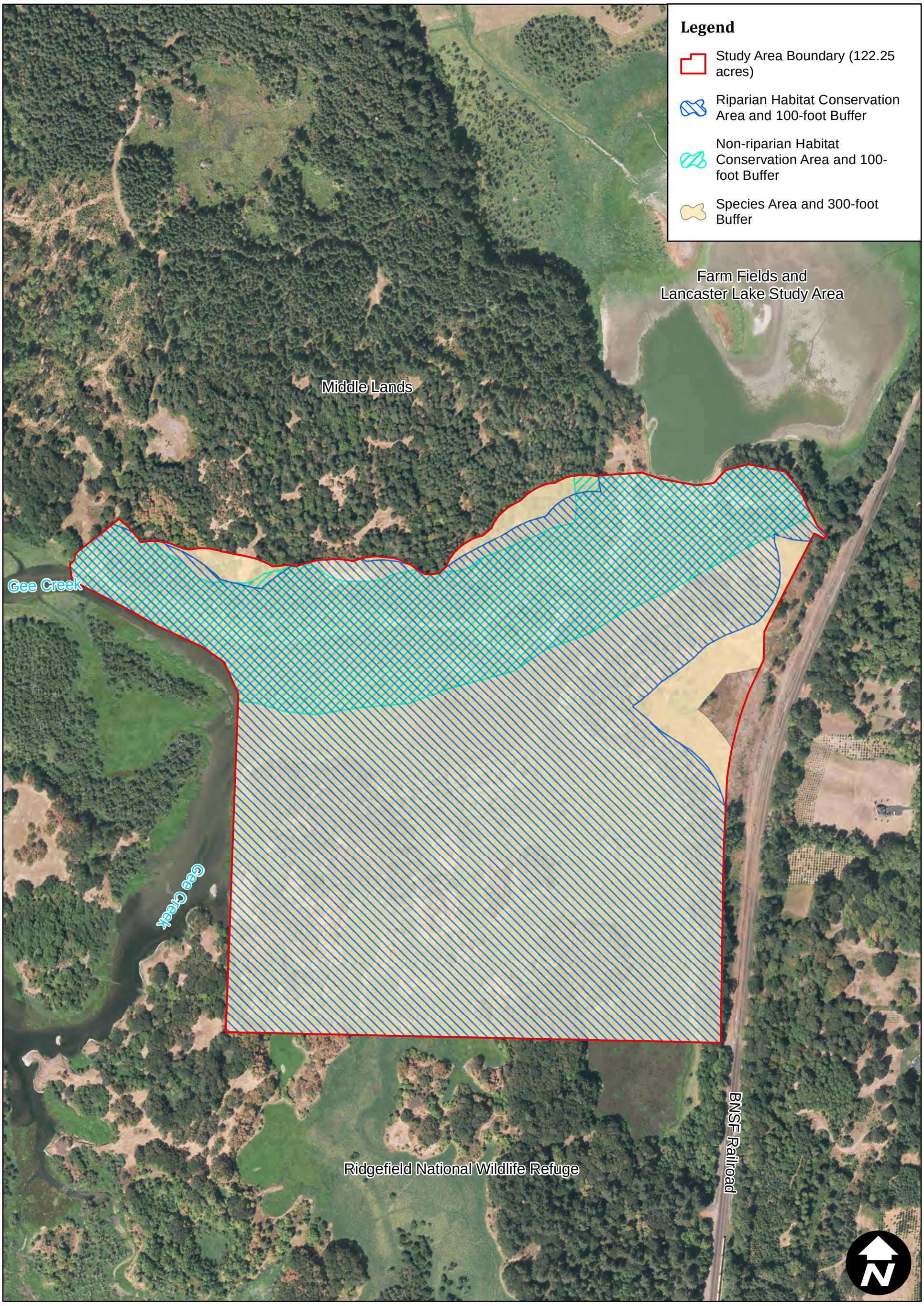
Scale: 1 inch = 500 feet

Data Source: GeoTerra, 2015; Clark County GIS, 2013

Figure 2-5. Clark County Habitat Conservation Critical Areas: Farm Fields and Lancaster Lake

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet



Date: 7/22/2016

Scale: 1 inch = 400 feet

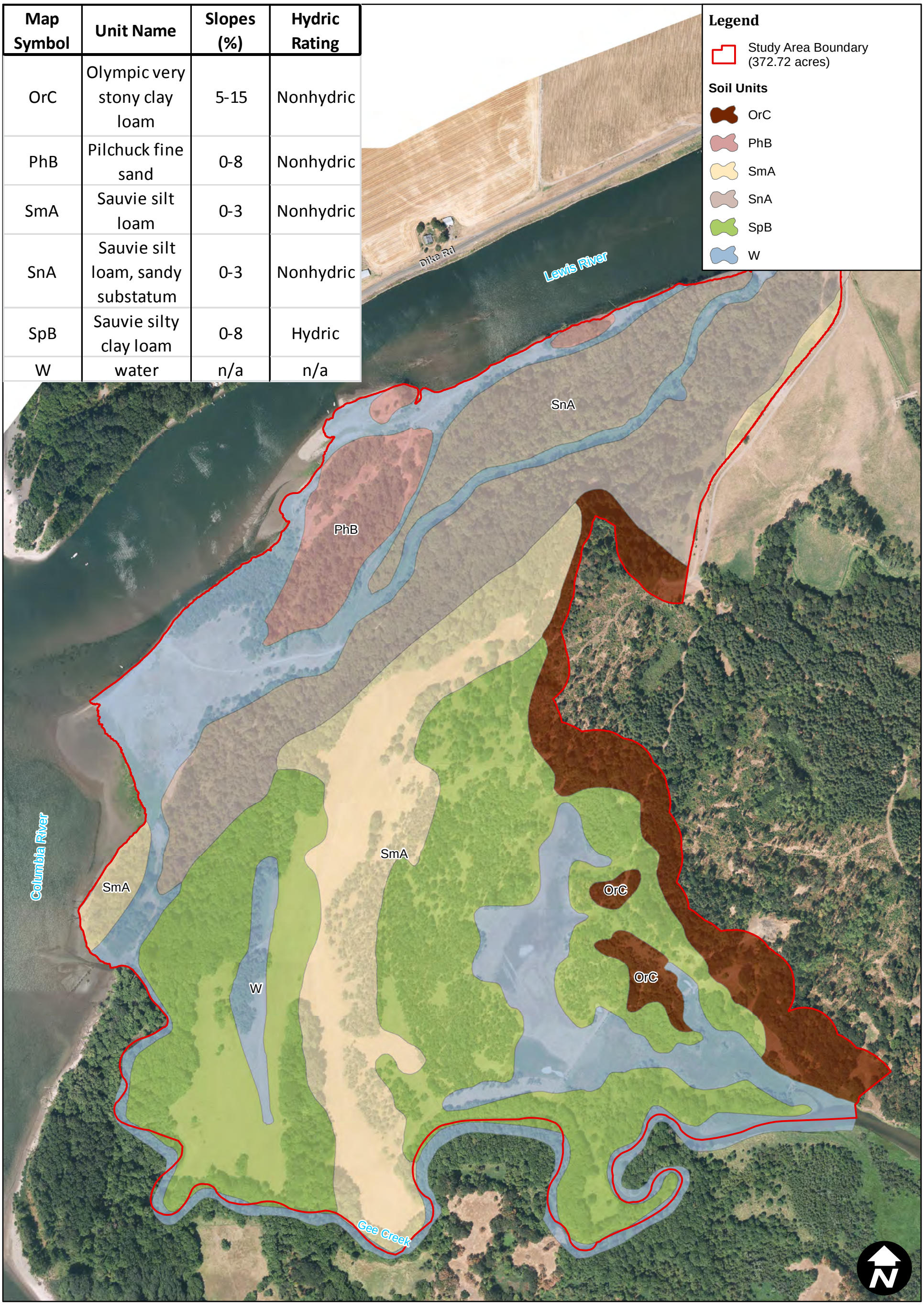
Data Source: GeoTerra, 2015; Clark County GIS, 2013

Figure 2-6. Clark County Habitat Conservation Critical Areas: Gee Creek - South Backwater

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Map Symbol	Unit Name	Slopes (%)	Hydric Rating
OrC	Olympic very stony clay loam	5-15	Nonhydric
PhB	Pilchuck fine sand	0-8	Nonhydric
SmA	Sauvie silt loam	0-3	Nonhydric
SnA	Sauvie silt loam, sandy substatum	0-3	Nonhydric
SpB	Sauvie silty clay loam	0-8	Hydric
W	water	n/a	n/a



Date: 7/22/2016

Scale: 1 inch = 550 feet

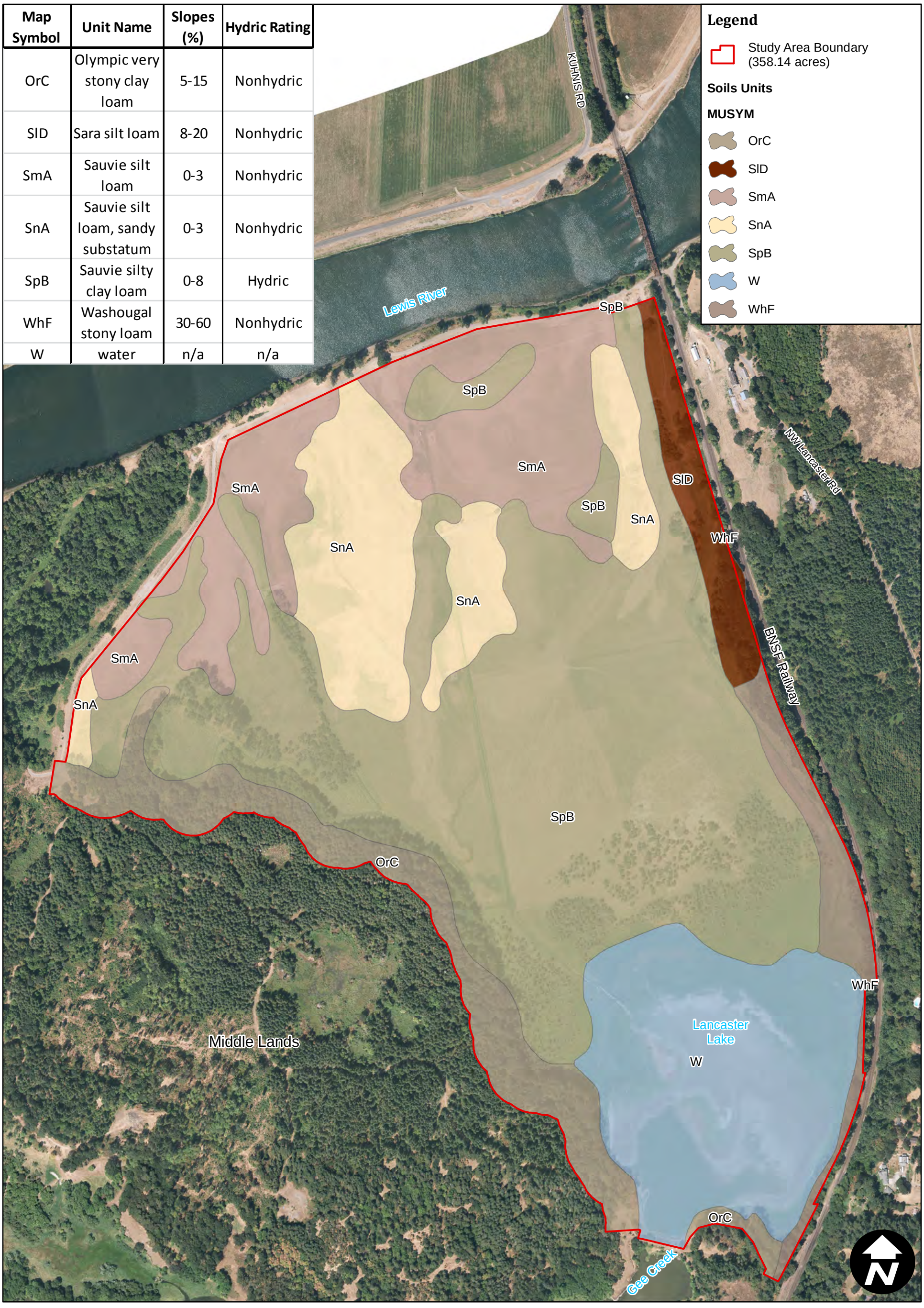
Data Source: GeoTerra, 2015; Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed 6/10/2014

Figure 2-7. USDA/NRCS Soil Survey Map: Lewis River and Gee Creek

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Map Symbol	Unit Name	Slopes (%)	Hydric Rating
OrC	Olympic very stony clay loam	5-15	Nonhydric
SlD	Sara silt loam	8-20	Nonhydric
SmA	Sauvie silt loam	0-3	Nonhydric
SnA	Sauvie silt loam, sandy substatum	0-3	Nonhydric
SpB	Sauvie silty clay loam	0-8	Hydric
WhF	Washougal stony loam	30-60	Nonhydric
W	water	n/a	n/a



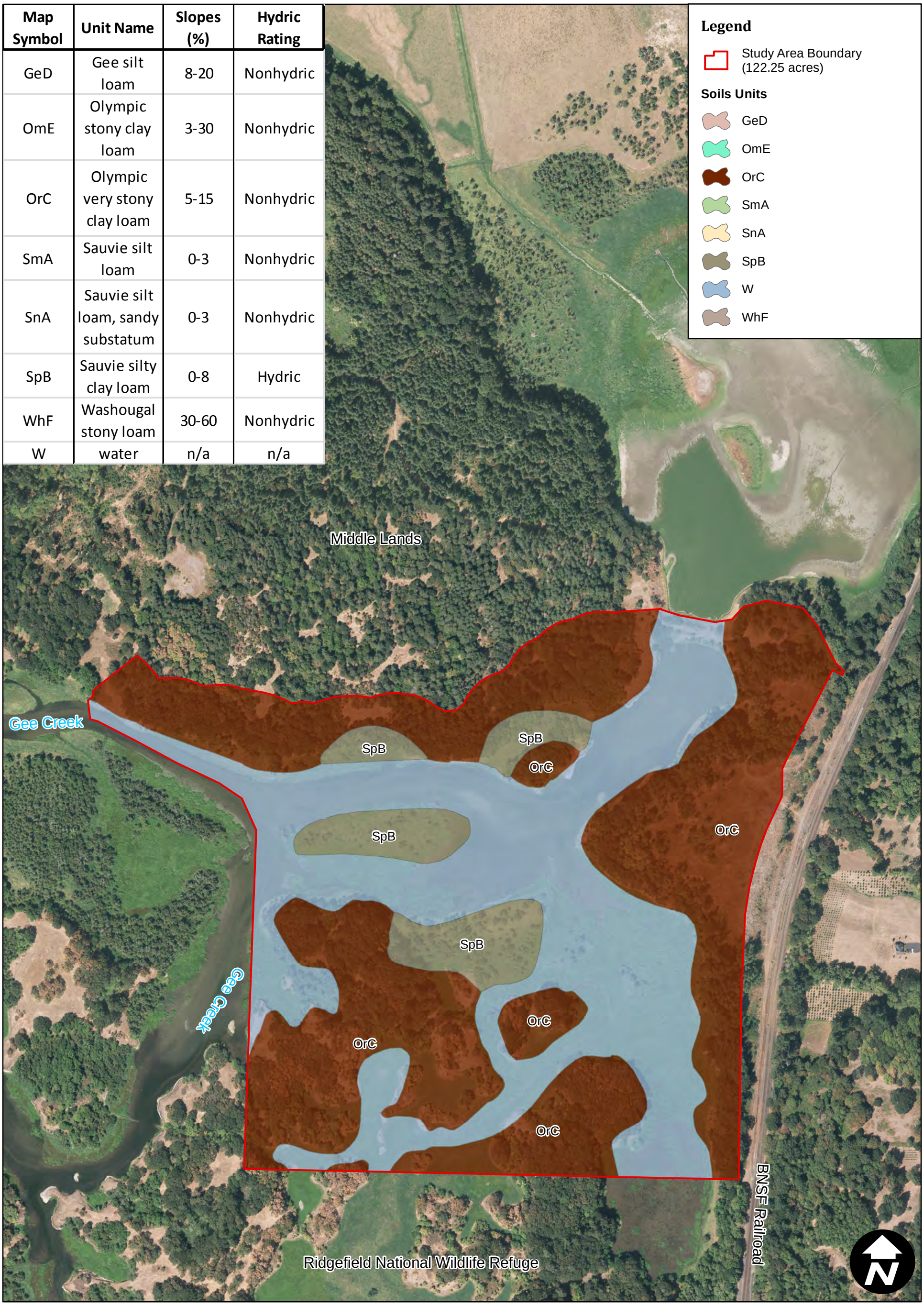
Date: 7/22/2016

Scale: 1 inch = 550 feet

Data Source: GEoTerra, 2015; Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed 6/10/2014

Figure 2-8. USDA/NRCS Soil Survey Map: Farm Fields and Lancaster Lake

Map Symbol	Unit Name	Slopes (%)	Hydric Rating
GeD	Gee silt loam	8-20	Nonhydric
OmE	Olympic stony clay loam	3-30	Nonhydric
OrC	Olympic very stony clay loam	5-15	Nonhydric
SmA	Sauvie silt loam	0-3	Nonhydric
SnA	Sauvie silt loam, sandy substatum	0-3	Nonhydric
SpB	Sauvie silty clay loam	0-8	Hydric
WhF	Washougal stony loam	30-60	Nonhydric
W	water	n/a	n/a



Date: 7/22/2016

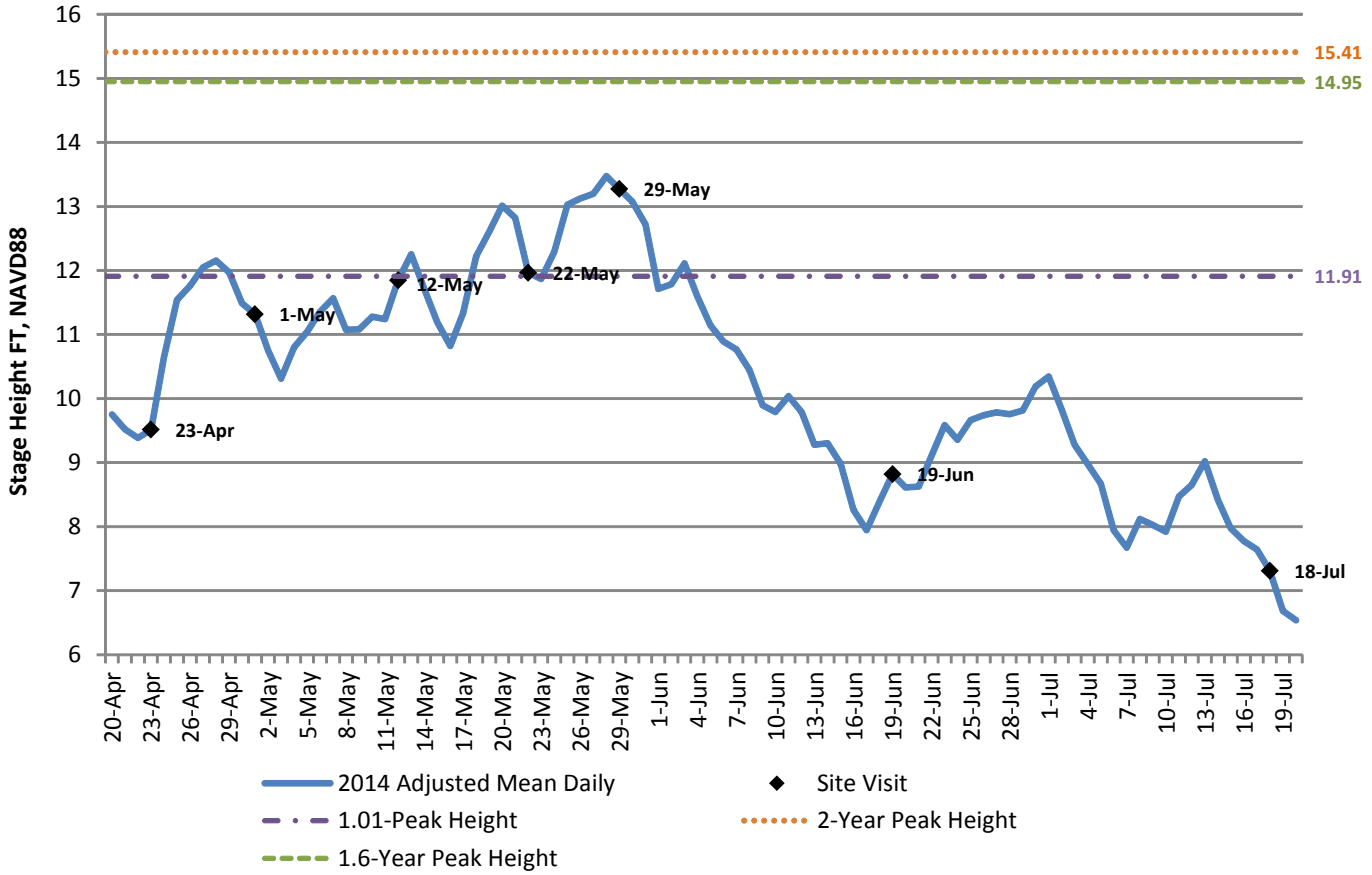
Scale: 1 inch = 400 feet

Data Source: GeoTerra, 2015; Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/. Accessed 6/10/2014

Figure 2-9. USDA/NRCS Soil Survey Map: Gee Creek - South Backwater

CASCADE ENVIRONMENTAL GROUP

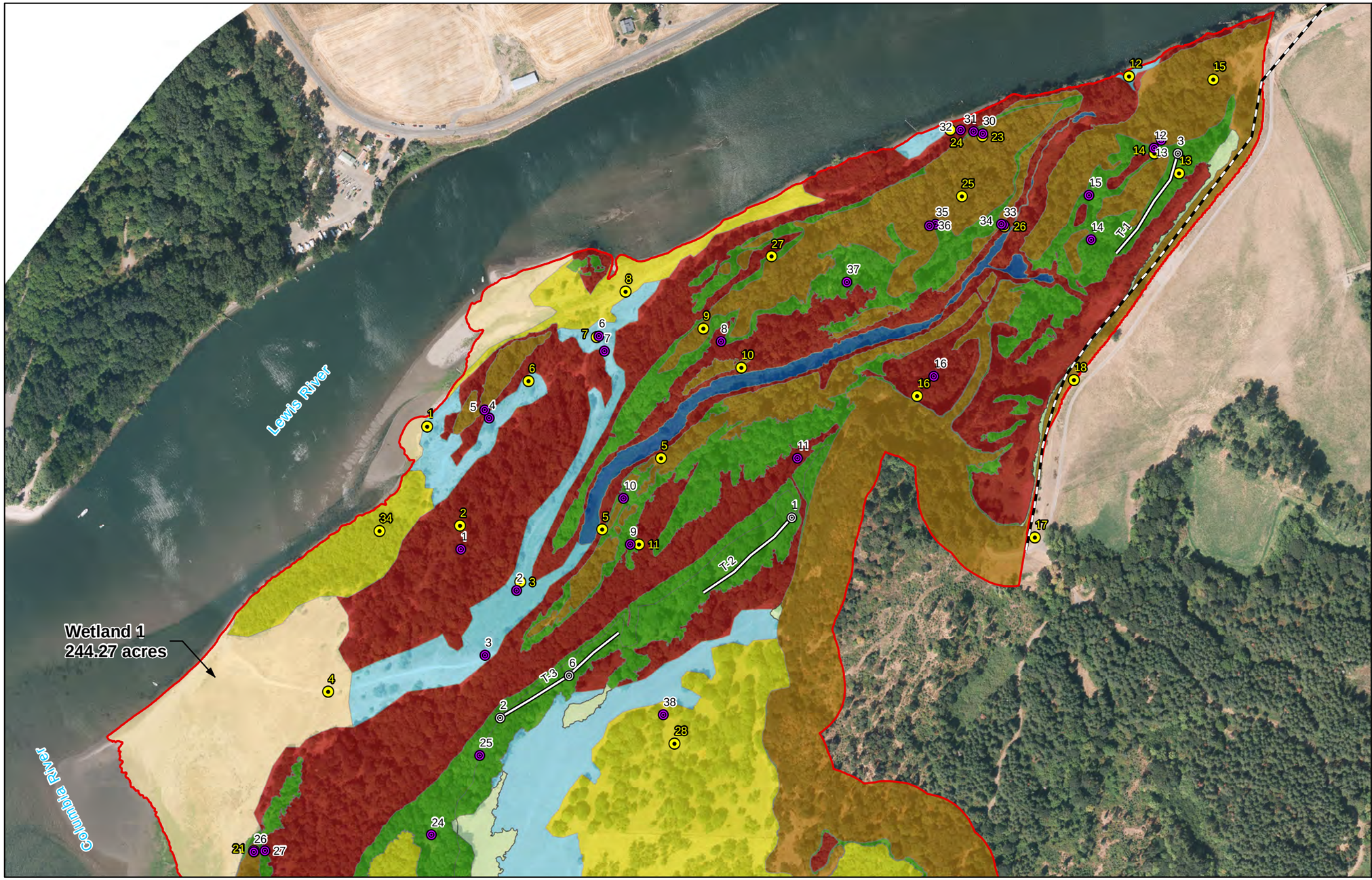
0 250 500 1,000 Feet



Notes:
Graph shows mean daily stage height between April 20 and July 20 in 2014, along with the dates of field visits. Also plotted are the 1.01-year, 1.6-year, and 2-year peak stage heights.

Peak stage heights were calculated using year-round data collected in the years 1998-2013 obtained from USGS Columbia River stream gage #14144700 at Vancouver, WA. A correction factor of (-3) feet derived from flood profiles developed by the Corps (Corps 1968) was applied to the data to account for the difference in water surface elvation between the Vancouver and the Site

Figure 2-10. Hydrograph of 15-Year Average Stage Height for the Columbia River at Vancouver



Legend

- Study Area Boundary (372.72 total acres)
- Levees
- Mosaic Sample Transects
- Mosaic Data Plots
- Data Plots
- Photo Points
- **Uplands (77.73 total acres)**

Mosaic (30.28 acres wetland; 20.18 acres upland)

- Palustrine Emergent,Temporarily Flooded (PEMA)
- Palustrine Forested, Broad-Leaved Deciduous, Temporarily Flooded (PFO1A)

Wetlands (244.53 total acres)

- Palustrine Emergent, Seasonally Flooded (PEMC)
- Palustrine Emergent, Artificially Flooded, Diked/Impounded (PEMKh)
- Palustrine Forested, Broad-Leaved Deciduous, Seasonally Flooded (PFO1C)
- Palustrine Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded (PSS1C)
- Riverine Non-Persistent Emergent. Seasonally-Tidally Flooded (R1EMR)
- Riverine-Tidal Unconsolidated Bottom, Permanently-Tidally Flooded (R1UBV; Aquatic Habitat)

Date: 11/29/2016

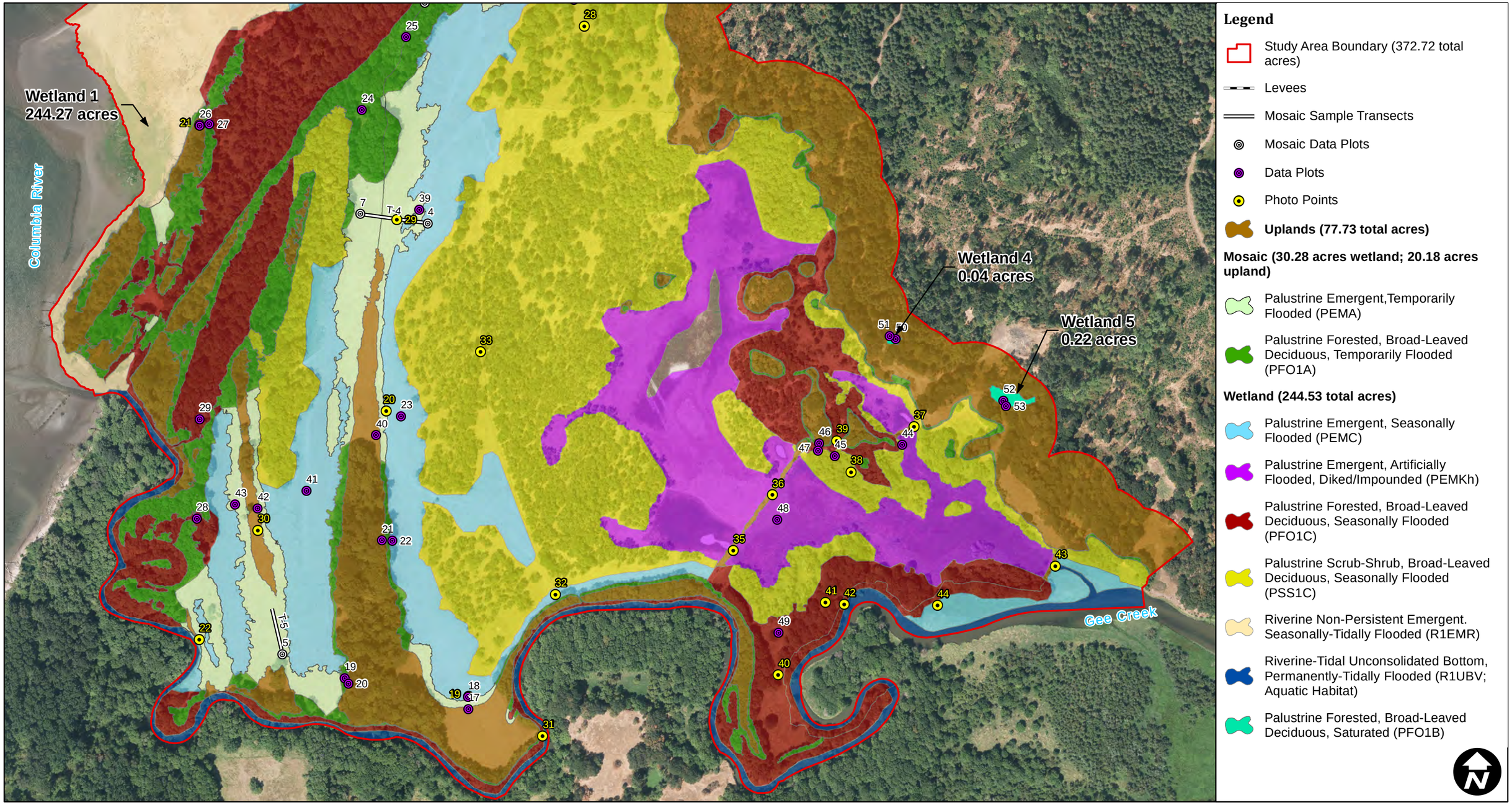
Scale: 1 inch = 400 feet

Data Source: Field survey, CEG, 2014; GeoTerra, 2015

Figure 3-1a. Wetland Boundaries: Northern Section - Lewis River and Gee Creek

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet



Date: 11/29/2016

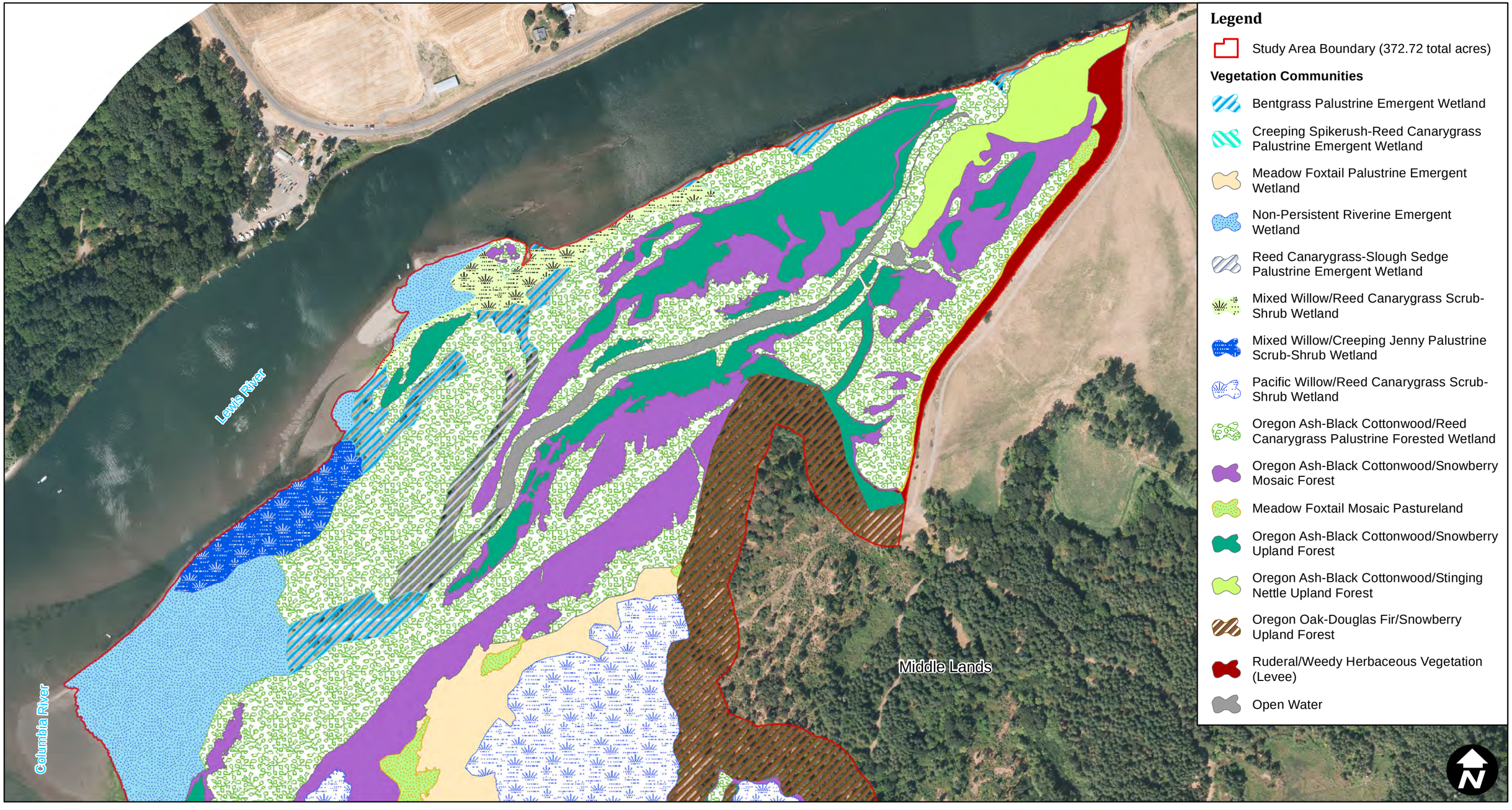
Scale: 1 inch = 400 feet

Data Source: Field survey, CEG, 2014; GeoTerra, 2015

Figure 3-1b. Wetland Boundaries: Southern Section - Lewis River and Gee Creek

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

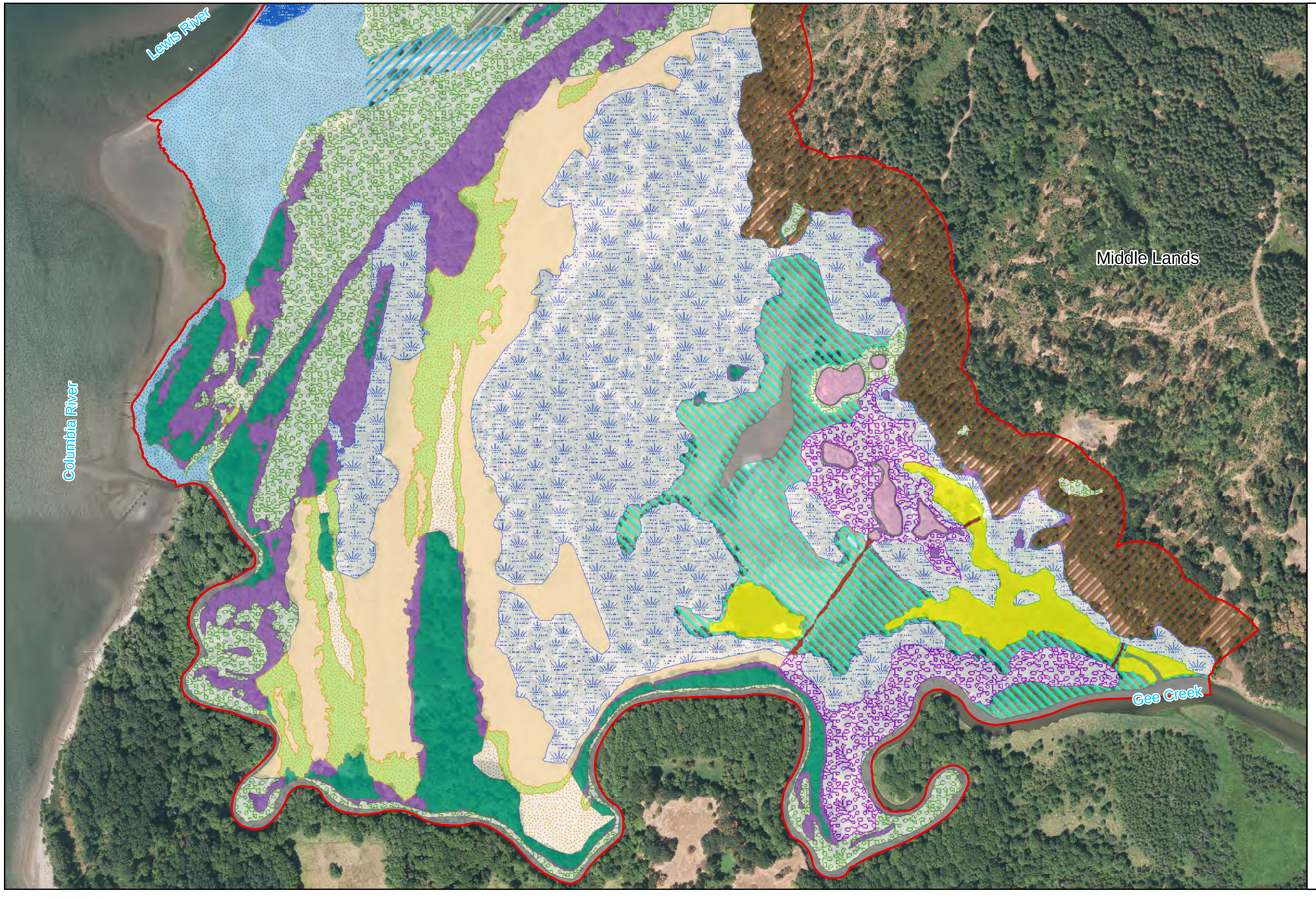


Date: 7/22/2016
Scale: 1 inch = 400 feet
Data Source: Field survey, CEG, May 2014; GeoTerra, 2015

Figure 3-2a. Vegetation Communities: Northern Section - Lewis River and Gee Creek

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet



Legend

- Study Area Boundary (372.72 total acres)

Vegetation Communities

- Bentgrass Palustrine Emergent Wetland
- Creeping Spikerush-Reed Canarygrass Palustrine Emergent Wetland
- Meadow Foxtail Palustrine Emergent Wetland
- Non-Persistent Riverine Emergent Wetland
- Reed Canarygrass-Slough Sedge Palustrine Emergent Wetland
- Wapato-Water Purslane-Smartweed Palustrine Emergent Wetland
- Mixed Willow-Creeping Jenny Palustrine Scrub-Shrub Wetland
- Pacific Willow-Reed Canarygrass Scrub-Shrub Wetland
- Oregon Ash-Black Cottonwood-Reed Canarygrass Palustrine Forested Wetland
- Oregon Ash-Reed Canarygrass Palustrine Forested Wetland
- Oregon Ash-Black Cottonwood-Snowberry Mosaic Forest
- Meadow Foxtail Mosaic Pastureland
- Meadow Foxtail Upland Pastureland
- Oregon Ash-Black Cottonwood-Snowberry Upland Forest
- Oregon Oak-Indian Plum-Blackberry Upland Forest
- Oregon Oak-Douglas Fir-Snowberry Upland Forest
- Ruderal/Weedy Herbaceous Vegetation (Levee)
- Open Water

N

Date: 7/22/2016

Scale: 1 inch = 450 feet

Data Source: Field survey, CEG, 2014; GeoTerra, 2015

Figure 3-2b. Vegetation Communities: Southern Section - Lewis River and Gee Creek

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Legend

Study Area Boundary (372.72 total acres)

Wetland Rating Units

Wetland 1a (148.57 acres*)

Wetland 1b (139.69 acres*)

Wetland 1c (6.47 acres)

Wetland 4 (0.04 acres)

Wetland 5 (0.22 acres)

Wetland Buffers

*acreage includes upland portion of mosaic (20.18 acres)

Lewis River

Columbia River

Wetland 1a
Category I
Buffer width: 150 ft.

Wetland 1b
Category I
Buffer width: 130 ft.

Middle Lands

Wetland 4
Category III
Buffer width: 40 ft.

Wetland 5
Category III
Buffer width: 40 ft.

Gee Creek

Wetland 1c
Category I
Buffer width: 130 ft.

N

Date: 11/29/2016

Scale: 1 inch = 550 feet

Data Source: Field Survey, CEG, 2014; GeoTerra, 2015; Clark County Code, 2016

Figure 3-3. Wetland Buffers: Lewis River and Gee Creek

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

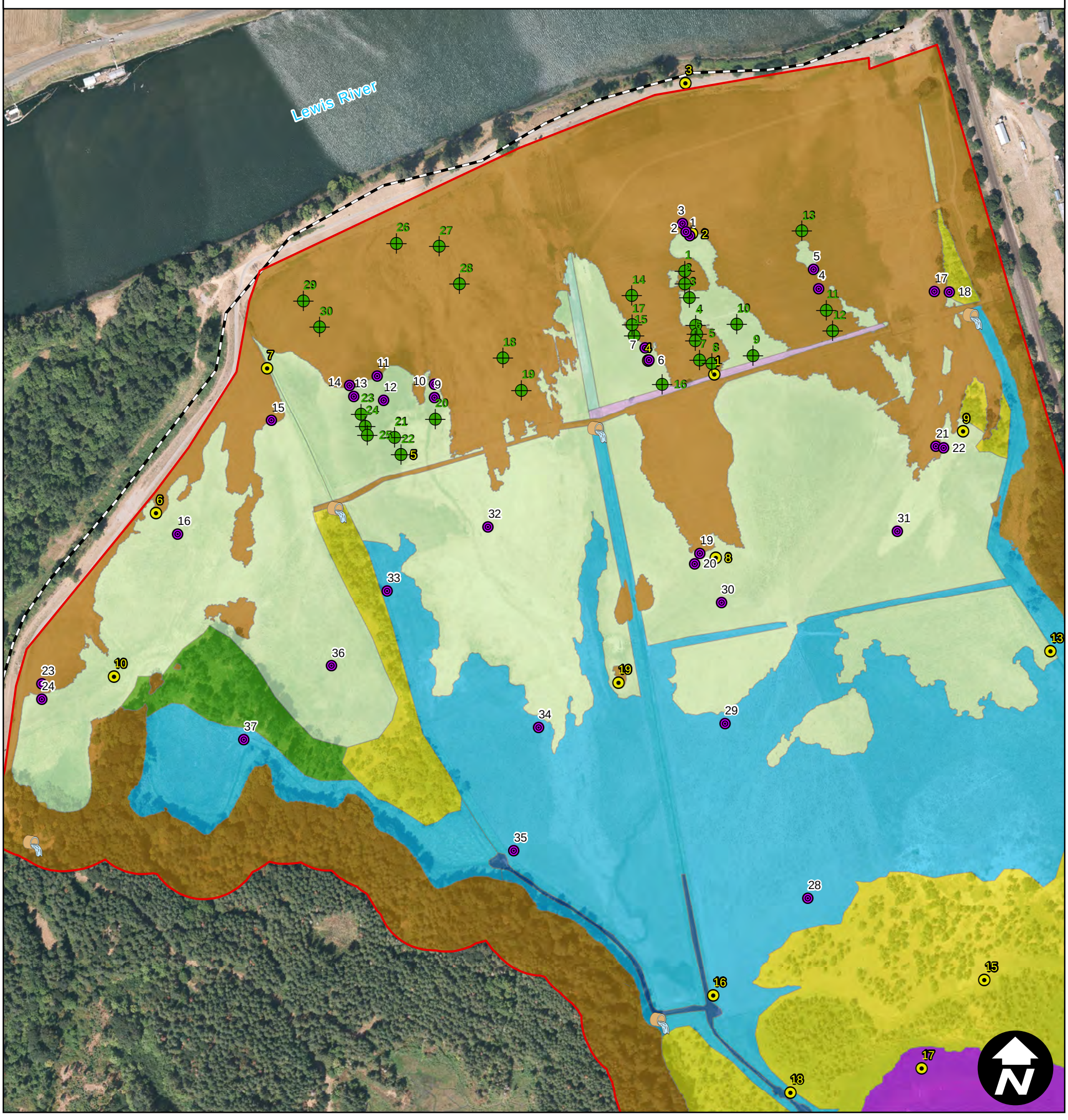
Plas Newydd Farm
Wetland Delineation Report

Legend

- Study Area Boundary (358.14 total acres)
- Levees
- Data Plots
- Hydrological Test Pits
- Photo Points
- Culverts
- **Uplands (105.75 total acres)**

Wetland 2 (252.39 total acres)

- Palustrine Persistent Emergent, Semipermanently Flooded, Diked/Impounded (PEM1Fh)
- Palustrine Persistent Emergent, Semipermanently Flooded, Excavated (PEM1Fx)
- Palustrine Emergent,Temporarily Flooded, Drained/Ditched (PEMAd)
- Palustrine Emergent, Seasonally Flooded, Drained/Ditched (PEMCd)
- Palustrine Emergent, Seasonally Flooded, Excavated (PEMCx)
- Palustrine Forested, Broadleaved Deciduous, Temporarily Flooded, Drained/Ditched (PFO1Ad)
- Palustrine Scrub-Shrub, Broadleaved Deciduous, Seasonally Flooded, Drained/Ditched (PSS1Cd)
- Palustrine Aquatic Bed, Semipermanently Flooded, Excavated (PABFx; Aquatic)
- Lacustrine Unconsolidated Bottom, Semipermanent-Tidal, Diked/Impounded (LUBTh; Aquatic)
- Lacustrine Unconsolidated Bottom, Permanent-Tidal, Diked/Impounded (LUBVh; Aquatic)



Date: 11/21/2016

Scale: 1 inch = 400 feet

Data Source: Field Survey, CEG, 2014; GeoTerra, 2015

Figure 3-4a. Wetland Boundaries:Northern Section - Farm Fields and Lancaster Lake

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

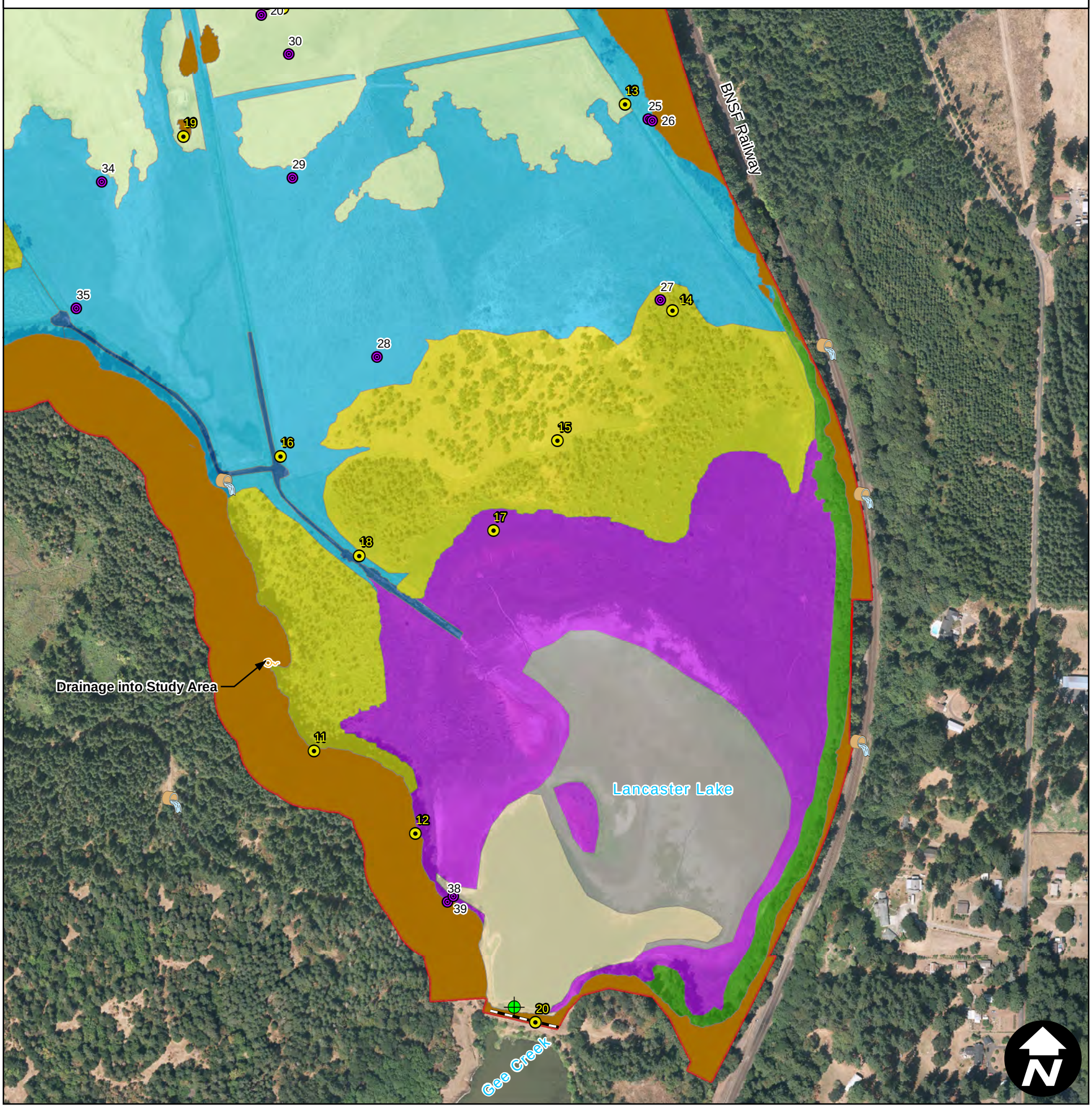
Plas Newydd Farm
Wetland Delineation Report

Legend

- Study Area Boundary (358.14 total acres)
- Levees
- Data Plots
- Photo Points
- Culverts
- Drainage off hillslope
- Tidegate
- **Uplands (105.75 total acres)**

Wetland 2 (252.39 total acres)

- Palustrine Persistent Emergent, Semipermanently Flooded, Diked/Impounded (PEM1Fh)
- Palustrine Persistent Emergent, Semipermanently Flooded, Excavated (PEM1Fx)
- Palustrine Emergent,Temporarily Flooded, Drained/Ditched (PEMAd)
- Palustrine Emergent, Seasonally Flooded, Drained/Ditched (PEMCd)
- Palustrine Emergent, Seasonally Flooded, Excavated (PEMCx)
- Palustrine Forested, Broadleaved Deciduous, Temporarily Flooded, Drained/Ditched (PFO1Ad)
- Palustrine Scrub-Shrub, Broadleaved Deciduous, Seasonally Flooded, Drained/Ditched (PSS1Cd)
- Palustrine Aquatic Bed, Semipermanently Flooded, Excavated (PABFx; Aquatic)
- Lacustrine Unconsolidated Bottom, Semipermanent-Tidal, Diked/Impounded (LUBTh; Aquatic)
- Lacustrine Unconsolidated Bottom, Permanent-Tidal, Diked/Impounded (LUBVh; Aquatic)



Date: 7/22/2016

Scale: 1 inch = 400 feet

Data Source: Field survey, CEG, May 2014; NAIP Imagery, Washington 2009.

Figure 3-4b. Wetland Boundaries: Southern Section - Farm Fields and Lancaster Lake

CASCADE ENVIRONMENTAL GROUP

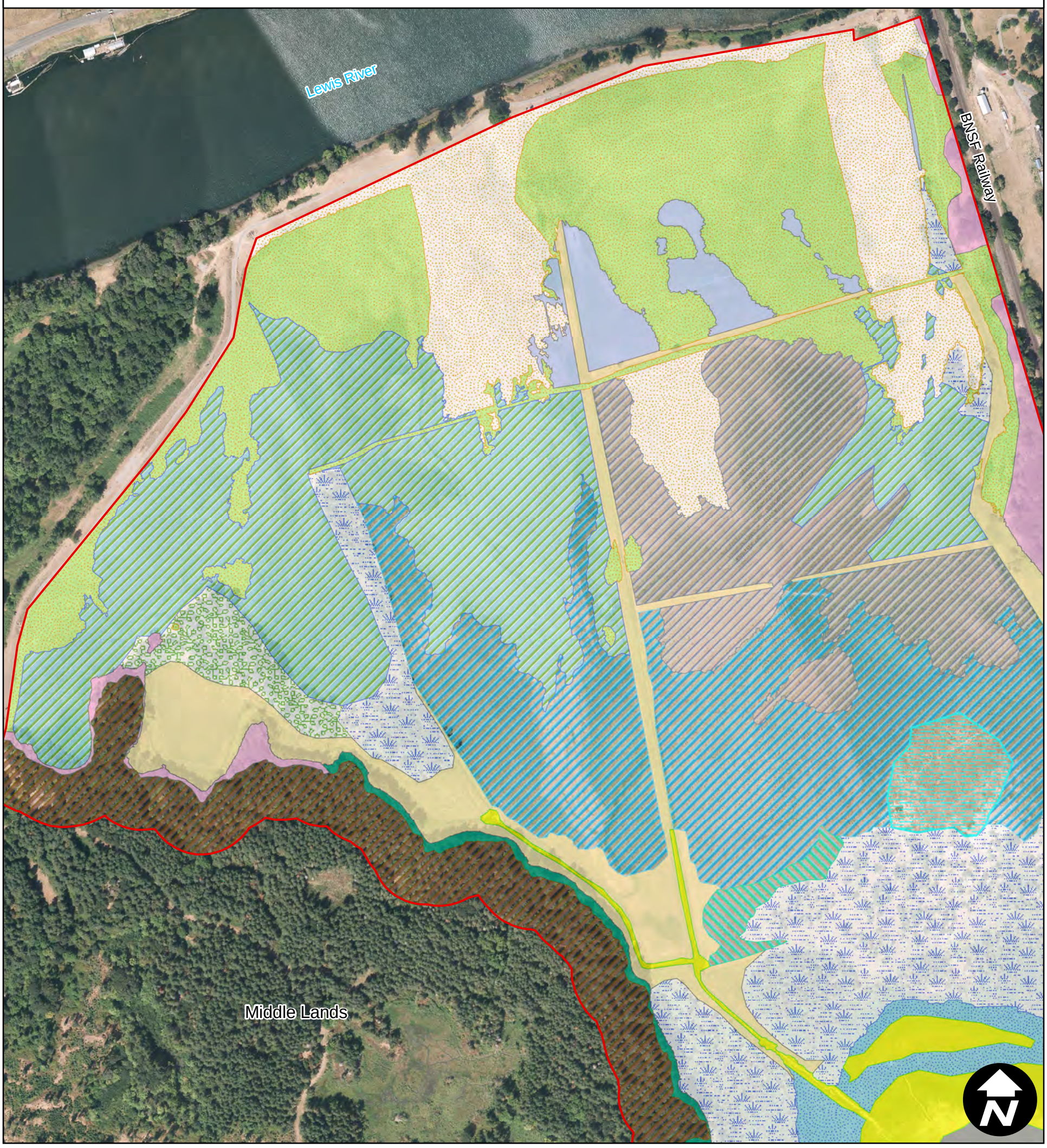
0 250 500 1,000 Feet

Legend

Study Area Boundary (358.14 total acres)

Vegetation Communities

- Colonial Bentgrass-Velvetgrass Palustrine Emergent Wetland
- Colonial Bentgrass-Water Foxtail Palustrine Emergent Wetland
- Tall Fescue-Velvetgrass Palustrine Emergent Wetland
- Common Rush-Reed Canarygrass Palustrine Emergent Wetland
- Common Rush-Velvetgrass Palustrine Emergent Wetland
- Creeping Spikerush-Reed Canarygrass Palustrine Emergent Wetland
- Reed Canarygrass-Smartweed Palustrine Emergent Wetland
- Wapato-Smartweed Palustrine Emergent Wetland
- Reed Canarygrass Palustrine Emergent Wetland
- Pacific Willow/Reed Canarygrass Scrub-Shrub Wetland
- Oregon Ash - Black Cottonwood Palustrine Forested Wetland
- Colonial Bentgrass-Perennial Ryegrass Upland Pasture
- Colonial Bentgrass-Tall Fescue-Velvetgrass Upland Pasture
- Bigleaf Maple-Douglas Fir/Hazelnut Upland Forest
- Black Cottonwood-Oregon Oak/Himalayan Blackberry Upland Forest
- Oregon Oak-Douglas Fir/Snowberry Upland Forest
- Open Water



Date: 7/22/2016
Scale: 1 inch = 400 feet
Data Source: Field survey, CEG, 2014; GeoTerra, 2015

Figure 3-5a. Vegetation Communities: Northern Section - Farm Fields and Lancaster Lake

CASCADE ENVIRONMENTAL GROUP

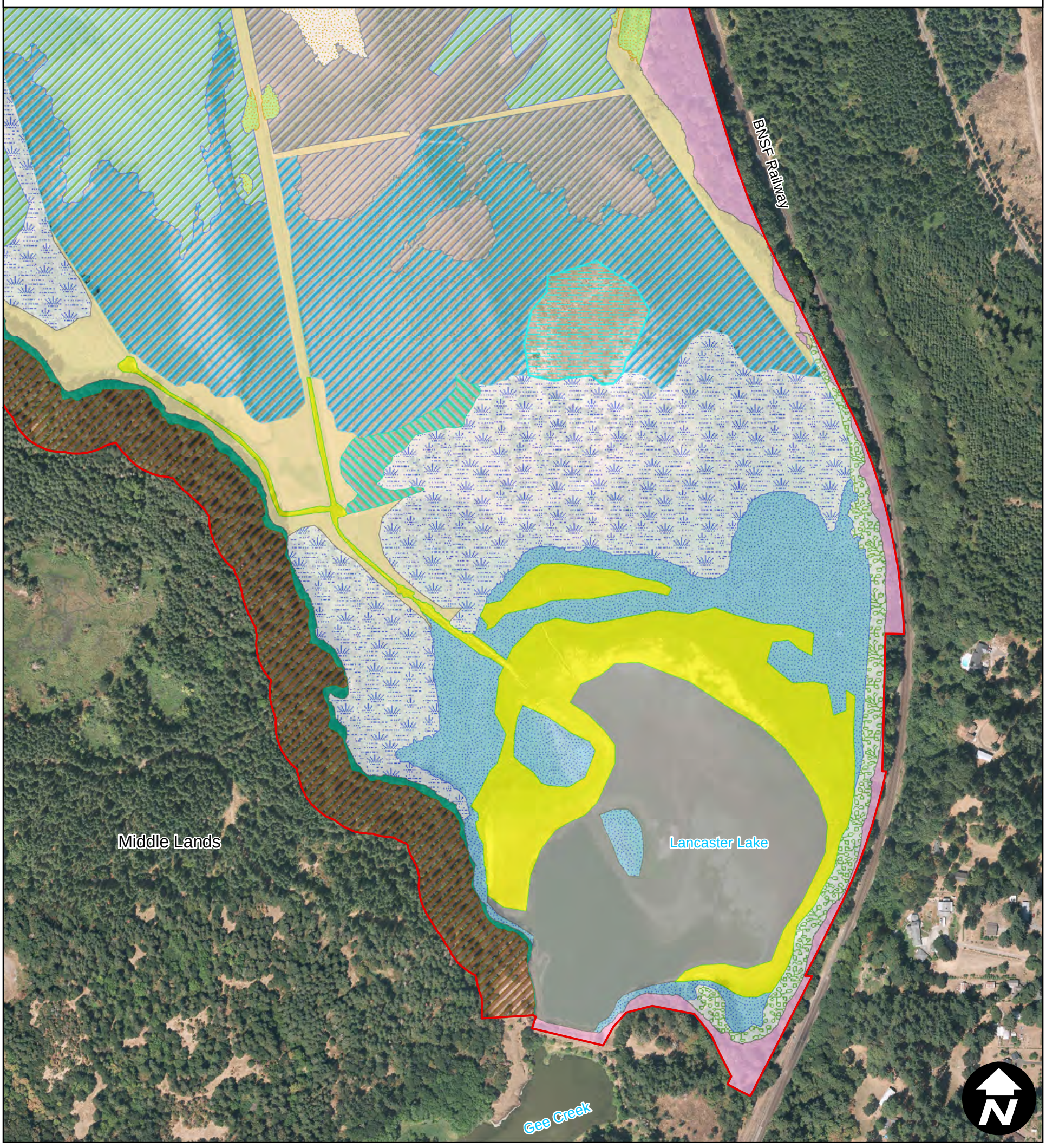
0 250 500 1,000 Feet

Legend

Study Area Boundary (358.14 total acres)

Vegetation Communities

- Colonial Bentgrass-Velvetgrass Palustrine Emergent Wetland
- Colonial Bentgrass-Water Foxtail Palustrine Emergent Wetland
- Tall Fescue-Velvetgrass Palustrine Emergent Wetland
- Common Rush-Reed Canarygrass Palustrine Emergent Wetland
- Common Rush-Velvetgrass Palustrine Emergent Wetland
- Creeping Spikerush-Reed Canarygrass Palustrine Emergent Wetland
- Reed Canarygrass-Smartweed Palustrine Emergent Wetland
- Wapato-Smartweed Palustrine Emergent Wetland
- Reed Canarygrass Palustrine Emergent Wetland
- Pacific Willow/Reed Canarygrass Scrub-Shrub Wetland
- Oregon Ash - Black Cottonwood Palustrine Forested Wetland
- Colonial Bentgrass-Perennial Ryegrass Upland Pasture
- Colonial Bentgrass-Tall Fescue-Velvetgrass Upland Pasture
- Bigleaf Maple-Douglas Fir/Hazelnut Upland Forest
- Black Cottonwood-Oregon Oak/Himalayan Blackberry Upland Forest
- Oregon Oak-Douglas Fir/Snowberry Upland Forest
- Open Water

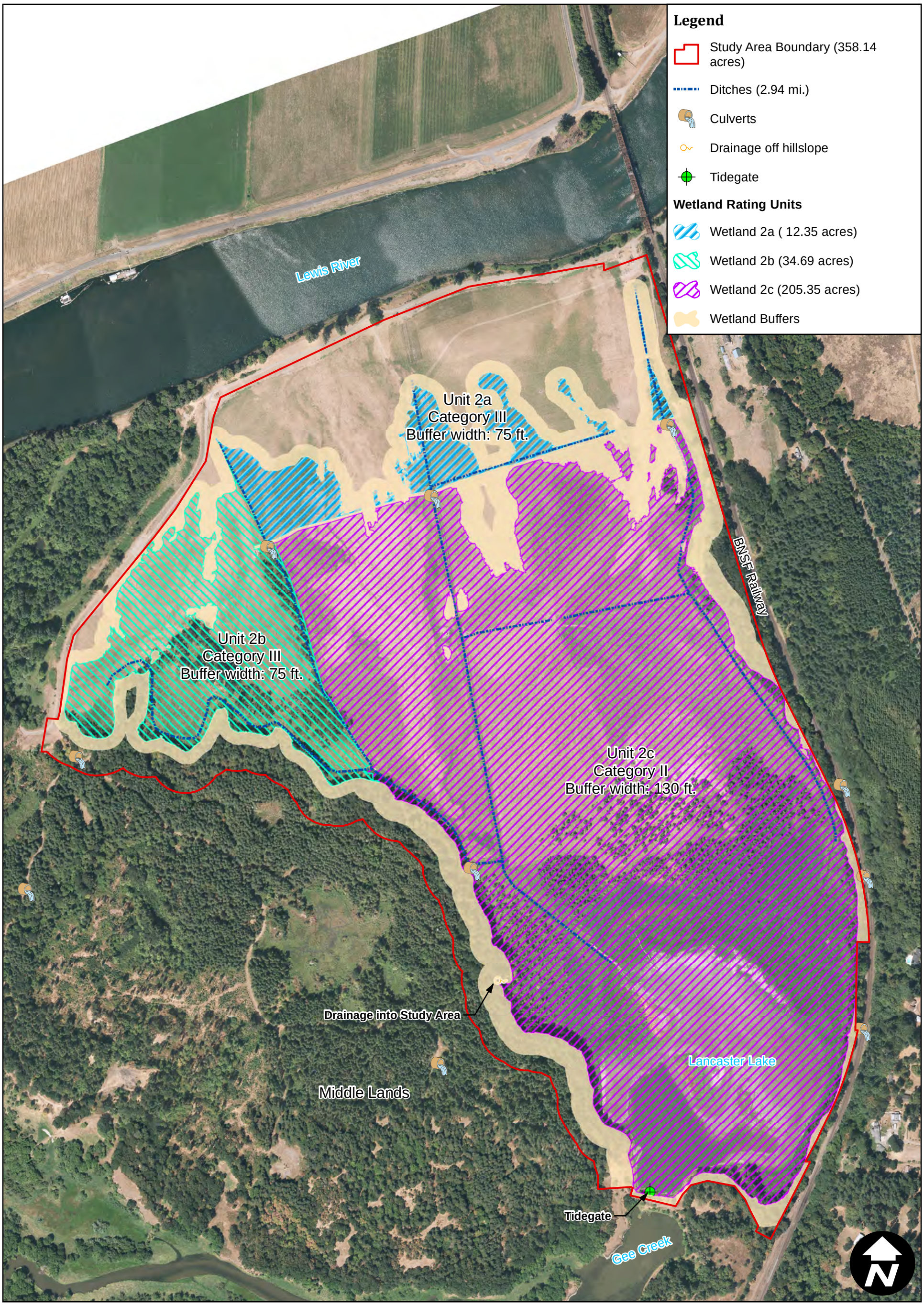


Date: 7/22/2016
Scale: 1 inch = 400 feet
Data Source: Field survey, CEG, 2014; GeoTerra, 2015

Figure 3-5b. Vegetation Communities: Southern Section - Farm Fields and Lancaster Lake

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet



Date: 7/22/2016

Scale: 1 inch = 550 feet

Data Source: Field survey, CEG, 2014; GeoTerra, 2015; Clark County Code, 2016

Figure 3-6. Wetland Buffers- Farm Fields and Lancaster Lake

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Legend

- Study Area Boundary (122.25 acres)
- Levees
- Streams
- Photo Points
- Data Plots
- Tidegate
- Uplands (53.52 acres)

Wetland 3 (68.73 acres)

- Palustrine Emergent, Seasonally Flooded (PEMC)
- Palustrine Forested, Broad-Leaved Deciduous, Seasonally Flooded (PFO1C)
- Palustrine Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded (PSS1C)
- Riverine-Tidal Unconsolidated Bottom, Permanently-Tidally Flooded (R1UBV; Aquatic Habitat)R1EM2T
- Riverine-Tidal Unconsolidated Bottom, Permanently-Tidally Flooded (R1UBV; Aquatic Habitat)

Middle Lands

Farm Fields and Lancaster Lake Study Area

Gee Creek

Wetland 3a
7.14 acres

Wetland 3b
61.60 acres

Gee Creek

Stream 1

Stream 2

BNSF Railroad

Ridgefield National Wildlife Refuge

N

Date: 7/22/2016

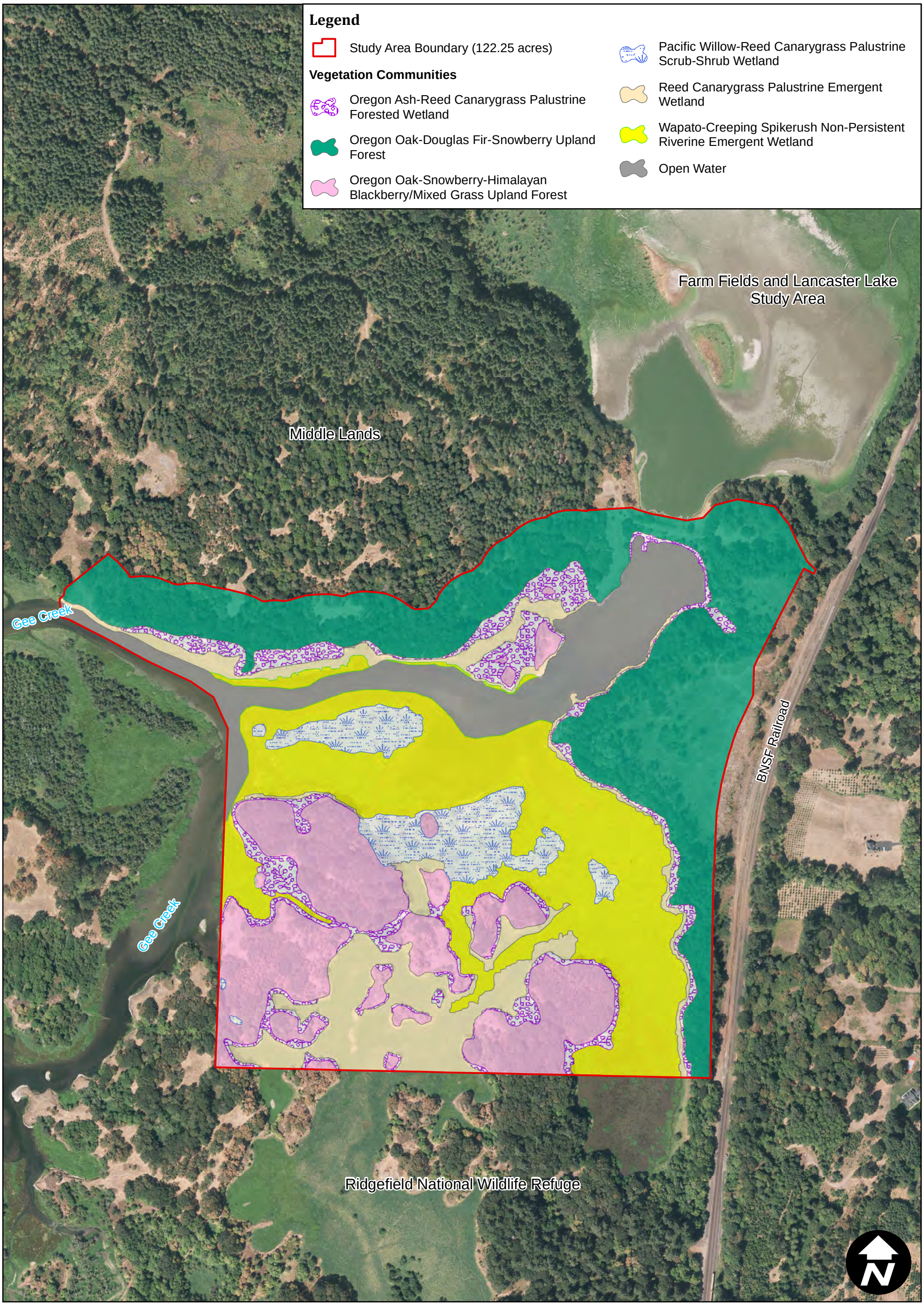
Scale: 1 inch = 400 feet

Data Source: Field survey, CEG, 2015; GeoTerrra, 2015

Figure 3-7. Wetland Boundaries: Gee Creek - South Backwater

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet



Date: 7/22/2016

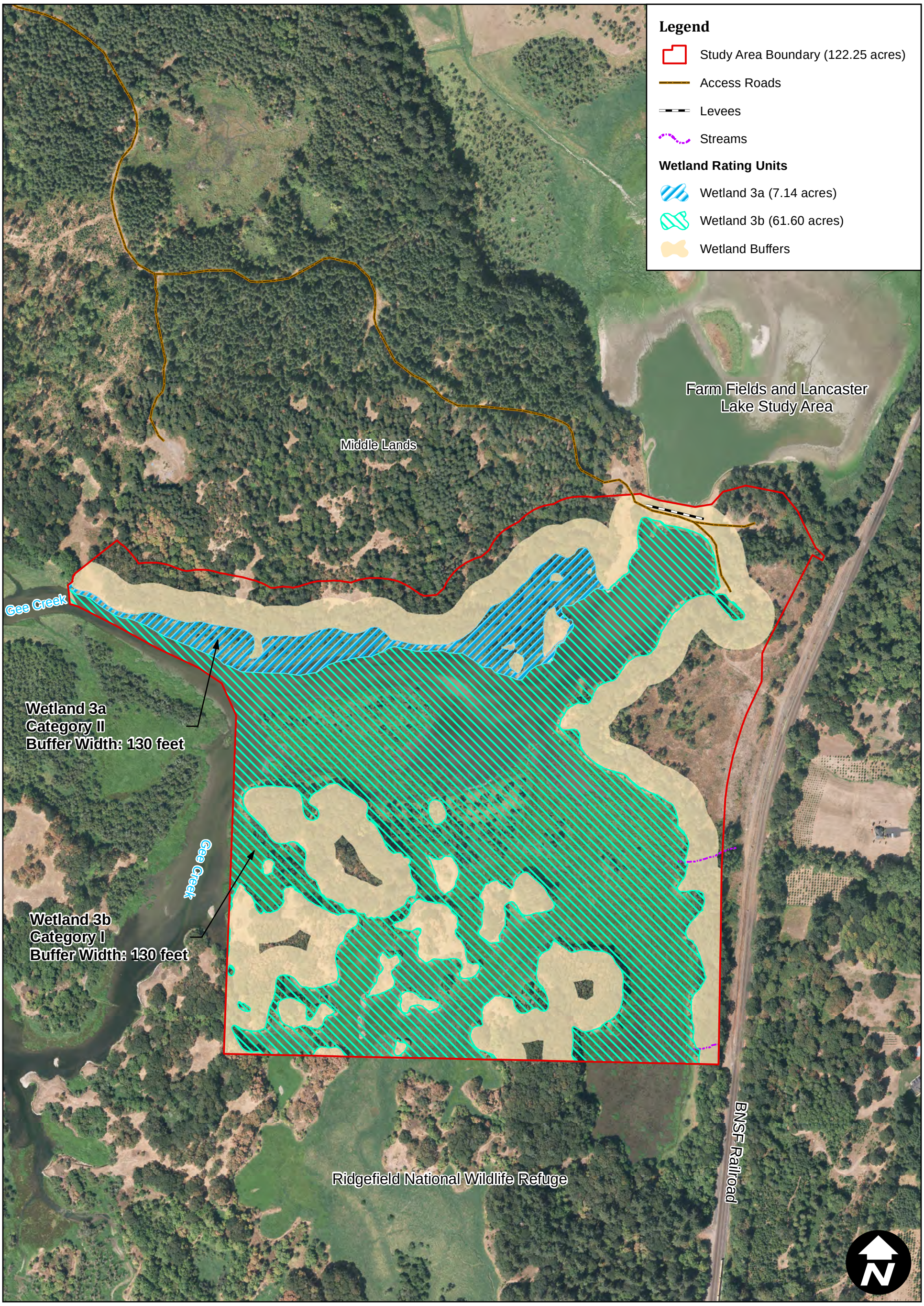
Scale: 1 inch = 400 feet

Data Source: Aerial from Plas Newydd Farm, 2015; Clark County GIS, 2013.

Figure 3-8. Vegetation Communities: Gee Creek - South Backwater

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet



Date: 7/22/2016

Scale: 1 inch = 400 feet

Data Source: Field survey, CEG, 2015; GeoTerrra, 2015

Figure 3-9. Wetland Buffer Map: Gee Creek - South Backwater

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Appendices

Appendix A: Wetland Delineation And Mosaic Data Forms

Lewis River and Gee Creek Data Forms

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 1
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Pilchuck fine sand NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera*	30	Y	FAC
2. *Fraxinus latifolia*	5		FACW
3.			
4.			
Total Cover:	35		
Shrub Stratum			
1. *Malus fusca*	15		FACW
2. *Rubus leucodermis*	20	Y	FACU
3. *Cornus alba*	40	Y	FACW
4. *Crataegus douglasii*	5		FAC
5.			
Total Cover:	80		
Herb Stratum			
1. *Phalaris arundinacea*	20	Y	FACW
2. *Carex obnupta*	50	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	70		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	100					SILT LOAM	
3-8	10 YR 4/2	80	7.5 YR 4/4	20	C	M	SANDY LOAM	
8-10	10 YR 4/2	75	7.5 YR 3/3	20	C	M	SANDY LOAM	
			5 YR 3/3	5	C	M		
10-16	10 YR 4/2	60	7.5 YR 4/4	20	C	M	SANDY LOAM	
			7.5 YR 4/6	10	C	M		
			5 YR 3/4	10	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 2
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Water NWI Classification: PEMR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	30	Y	FACW
2. *Carex obnupta*	70	Y	OBL
3. *Galium trifidum*	20		FACW
4. *Lysimachia nummularia*	20		FACW
5. *Juncus effusus*	5		FACW
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	145		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 4/1	95	7.5 YR 4/6	5	C	PL	SILTY LOAM	
5-16	10 YR 4/1	80	7.5 YR 4/6	10	C	PL	SILTY LOAM	
			7.5 YR 3/4	10	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water table Present?	Yes	X	No	___	Depth (inches): 9
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 3
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Water NWI Classification: PEMR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Agrostis stolonifera*	100	Y	FAC
2. *Equisetum arvense*	5		FAC
3. *Plantago lanceolata*	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	110		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 4/2	90	7.5 YR 4/6	10	C	PL	SANDY LOAM	
4-16	10 YR 4/2	93	10 YR 4/4	7	C	M	SAND	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 4
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Pilchuck fine sand NWI Classification: R1USR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	75	Y	FACW
2. *Solidago canadensis*	2		FACU
3. *Rumex crispus*	2		FAC
4. *Lysimachia nummularia*	10		FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	89		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular PlantS2
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 4/2	80	7.5 YR 4/4	15	C	M	SANDY LOAM	
			7.5 YR 4/4	5	C	PL		
2-4	10 YR 4/2	100					SAND	
4-11	10 YR 4/2	75	7.5 YR 4/4	25	C	M	SANDY LOAM	
11-16	10 YR 4/2	100					SAND	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 5
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Pilchuck fine sand NWI Classification: R1USR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No X**
Hydric Soil Present?	Yes _____ No X		
Wetland Hydrology Present?	Yes _____ No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera*	15	Y	FAC
2. *Quercus garryana*	15	Y	FACU
3.			
4.			
Total Cover:	30		
Shrub Stratum			
1. *Rubus armeniacus*	60	Y	FACU
2. *Rosa nutkana*	15	Y	FAC
3.			
4.			
5.			
Total Cover:	75		
Herb Stratum			
1. *Agrostis stolonifera*	20	Y	FAC
2. *Solidago canadensis*	0.01		FACU
3. *Clarkia gracilis*	0.01		UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	20.02		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **40%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	**0**
FACW species		x2 =	**0**
FAC species	**50**	x3 =	**150**
FACU species	**75**	x4 =	**300**
UPL species	**0.01**	x5 =	**0.05**
Column Totals:	**125.01** (A)		**450.05** (B)

Prevalence Index = B/A = **3.6**

Hydrophytic Vegetation Indicators:
_____ 1 - Rapid Test for Hydrophytic Vegetation
_____ 2 - Dominance Test is >50%
_____ 3 - Prevalence Index is ≤3.0[1]
_____ 4 - Morphological Adaptation1 (Provide supporting
_____ data in Remarks or on a separate sheet)
_____ 5 - Wetland Non-Vascular PlantS2
_____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks:

SOIL

Sampling Point: 5

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	100					SILT LOAM	
3-5	10 YR 4/2	96	10 YR 4/3	3	C	M	SILT LOAM	
			10 YR 4/6	1	C	M		
5-10	10 YR 4/2	100					SILT LOAM	
10-16	10 YR 4/1	100					SAND	

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Muck Mineral (S2)
___ Sandy gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:
Depth (inches):

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 6
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-2%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Pilchuck fine sand NWI Classification: R1USR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X No
Are Vegetation , Soil X , 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes No X	
Wetland Hydrology Present?	Yes X No	

Remarks: Plot is located near Lewis River at an elevation below OHW on "vegetated sand," a problem soil that may lack hydric indicators due to deposition, low iron content, or low organic matter content. Due to the plots location, it is assumed wetland.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Agrostis stolonifera*	70	Y	FAC
2. *Daucus carota*	10		FACU
3. *Clarkia gracilis*	15		UPL
4. *Leucanthemum vulgare*	15		FACU
5. *Vicia americana*	0.01		FAC
6. *Plantago lanceolata*	15		FACU
7. *Centaurea pratensis*	5		UPL
8.			
9.			
10.			
11.			
Total Cover:	130.01		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular PlantS2
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 6

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 3/3	85	10 YR 3/6	5	C	M	SILT LOAM	MIXED MATRIX
			10 YR 4/2	10			SAND	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks: Plot is located near Lewis River at elevation below OHW on "vegetated sand," a problem soil that may lack hydric indicators due to deposition, low iron content, or low organic matter content. Due to the plots location, it is assumed wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 7
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-2%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Pilchuck fine sand NWI Classification: R1USR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera*	10	Y	FAC
2.			
3.			
4.			
Total Cover:	10		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Agrostis stolonifera*	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: Vegetation does not meet Prevalence Index

SOIL

Sampling Point: 7

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 4/2	90	10 YR 4/4	10	C	M	SANDY LOAM	
6-16	10 YR 4/1	100					SAND	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 8
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera*	60	Y	FAC
2. *Fraxinus latifolia*	45	Y	FACW
3.			
4.			
Total Cover:	105		
Shrub Stratum			
1. *Symphoricarpos albus*	15	Y	FACU
2. *Lonicera involucrata*	15	Y	FAC
3. *Cornus alba*	20	Y	FACW
4.			
5.			
Total Cover:	50		
Herb Stratum			
1. *Phalaris arundinacea*	75	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	75		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **5** (A)
Total Number of Dominant Species Across All Strata: **6** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **83%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 8

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	90	10 YR 6/2	5	D	M	SILT LOAM	
			7.5 YR 4/4	5	C	M		
4-8	10 YR 5/2	85	10 YR 3/4	5	C	M	SILT LOAM	
			10 YR 6/2	5	D	M		
			7.5 YR 4/6	5	C	PL		
8-12	10 YR 5/2	75	5 YR 3/4	10	C	M	SILT LOAM	
			7.5 YR 4/4	15	C	M		
12-16	10 YR 5/2	65	7.5 YR 4/4	20	C	M	SILT LOAM	
			5 YR 3/4	15	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 9
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: PFOR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera*	10		FAC
2. *Fraxinus latifolia*	75	Y	FACW
3.			
4.			
Total Cover:	85		
Shrub Stratum			
1. *Symphoricarpos albus*	10	Y	FACU
2. *Rubus leucodermis*	10	Y	FACU
3. *Cornus alba*	20	Y	FACW
4.			
5.			
Total Cover:	40		
Herb Stratum			
1. *Phalaris arundinacea*	55	Y	FACW
2. *Athyrium filix-femina*	20		FAC
3. *Equisetum arvense*	25	Y	FAC
4. *Carex obnupta*	5		OBL
5. *Lysimachia nummularia*	15		FACW
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	120		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **5** (A)
Total Number of Dominant Species Across All Strata: **6** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **83%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular PlantS2
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 9

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	83	10 YR 5/2	5	D	M	SILTY CLAY L	
			5 YR 4/6	7	C	PL		
			7.5 YR 4/6	5	C	M		
4-12	10 YR 4/2	80	7.5 YR 5/8	10	C	M	SILT LOAM	
			7.5 YR 4/6	10	C	PL		
12-16	10 YR 4/2	70	7.5 YR 4/6	15	C	M	SILT LOAM	
			7.5 YR 5/8	15	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 10
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: PEMT
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	35	Y	FACW
2.			
3.			
4.			
Total Cover:	35		
Shrub Stratum			
1. *Rubus armeniacus*	20	Y	FACU
2. *Cornus alba*	20	Y	FACW
3.			
4.			
5.			
Total Cover:	40		
Herb Stratum			
1. *Rubus ursinus*	5		FACU
2. *Phalaris arundinacea*	85	Y	FACW
3. *Equisetum arvense*	5		FAC
4. *Ranunculus repens*	5		FAC
5. *Agrostis stolonifera*	5		FAC
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	105		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 10

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100					SILT LOAM	
2-6	10 YR 4/2	90	7.5 YR 4/4	10	C	M	SILT LOAM	
6-10	10 YR 4/2	80	7.5 YR 4/4	20	C	PL	SILT LOAM	
10-16	10 YR 4/2	75	7.5 YR 4/4	20	C	M	SILT LOAM	
			10 YR 5/1	5	D	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:
Depth (inches):

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 11
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: PFOR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	50	Y	FACW
2.			
3.			
4.			
Total Cover:	50		
Shrub Stratum			
1. *Crataegus douglasii*	5	Y	FAC
2. *Cornus alba*	10	Y	FACW
3.			
4.			
5.			
Total Cover:	15		
Herb Stratum			
1. *Phalaris arundinacea*	90	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	90		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 11

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 4/2	96	10 YR 4/4	2	C	M	SCL	
			10 YR 4/4	2	C	PL		
3-6	10 YR 4/1	75	5 YR 4/4	5	C	M	SCL	
			7.5 YR 4/3	10	C	M	SILT LOAM	
			10 YR 5/1	10	D	M		
6-16	10 YR 5/2	63	10 YR 4/4	30	C	M	SILT LOAM	
			7.5 YR 4/4	5	C	M		
			7.5 YR 4/6	2	C	PL		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 12
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-2%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum 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 significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera*	10		FAC
2. *Fraxinus latifolia*	60	Y	FACW
3.			
4.			
Total Cover:	70		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	80	Y	FACW
2. *Urtica dioica*	20		FAC
3. *Galium aparine*	10		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	110		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 12

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 4/2	100					SANDY LOAM	
4-7	10 YR 4/2	98	10 YR 4/4	2	C	M		
7-9	10 YR 4/1	100					SANDY LOAM	
9-16	10 YR 5/2	80	7.5 YR 3/4	15	C	M	SILT LOAM	
			10 YR 6/1	5	D	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 13
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: PFOR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes No X**
Hydric Soil Present?	Yes No X		
Wetland Hydrology Present?	Yes No X		

Remarks: Vegetation community is typical of riparian/floodplain forests featuring a mix of upland and wetland plants adapted to fluctuating hydrological condtions; however, no hydric soil or wetland hydrological indicators were present. For this reason, the category of "mosaic" was applied to areas of the site. This plot falls within that area.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera*	20	Y	FAC
2. *Fraxinus latifolia*	40	Y	FACW
3.			
4.			
Total Cover:	60		
Shrub Stratum			
1. *Rubus armeniacus*	20	Y	FACU
2.			
3.			
4.			
5.			
Total Cover:	20		
Herb Stratum			
1. *Rubus ursinus*	15		FACU
2. *Phalaris arundinacea*	10		FACW
3. *Urtica dioica*	80	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	105		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 13

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/1	100					SANDY LOAM	
2-16	10 YR 4/2	100					SAND	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 14
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: PFOR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	50	Y	FACW
2.			
3.			
4.			
Total Cover:	50		
Shrub Stratum			
1. *Cornus alba*	10		FACW
2. *Rosa nutkana*	20	Y	FAC
3. *Lonicera involucrata*	20	Y	FAC
4. *Rubus armeniacus*	5		FACU
5.			
Total Cover:	55		
Herb Stratum			
1. *Phalaris arundinacea*	75	Y	FACW
2. *Galium aparine*	2		FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	77		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 14

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					SILT LOAM	
4-9	10 YR 4/2	85	10 YR 4/4	5	C	M	SILT LOAM	
			10 YR 4/4	5	C	PL		
			10 YR 6/1	5	D	M		
9-12	10 YR 5/2	88	7.5 YR 3/4	10	C	M	SILT LOAM	
			10 YR 6/1	2	D	M		
12-16	10 YR 5/2	70	10 YR 6/1	10	D	M	SILT LOAM	
			5 YR 4/6	20	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 15
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: PFOR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera*	20	Y	FAC
2. *Fraxinus latifolia*	40	Y	FACW
3.			
4.			
Total Cover:	60		
Shrub Stratum			
1. *Symphoricarpos albus*	10	Y	FACU
2. *Rubus armeniacus*	2		FACU
3.			
4.			
5.			
Total Cover:	12		
Herb Stratum			
1. *Phalaris arundinacea*	80	Y	FACW
2. *Galium aparine*	5		FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	85		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 15

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 4/2	100					SILT LOAM	
2-6	10 YR 4/2	90	10 YR 4/4	5	C	M	SILT LOAM	
			10 YR 6/2	5	D	M		
6-10	10 YR 4/2	80	10 YR 6/1	10	D	M	SILT LOAM	
			10 YR 4/4	5	C	M		
			10 YR 5/1	5	D	M		
10-16	10 YR 5/2	75	10 YR 6/1	10	D	M		
			5 YR 4/6	15	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 4/23/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 16
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: PFOR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** Yes **X** No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera*	70	Y	FAC
2.			
3.			
4.			
Total Cover:	70		
Shrub Stratum			
1. *Symphoricarpos albus*	20	Y	FACU
2. *Cornus alba*	30	Y	FACW
3. *Lonicera involucrata*	10		FAC
4. *Rubus spectabilis*	5		FAC
5. *Rosa nutkana*	10		FAC
Total Cover:	75		
Herb Stratum			
1. *Rubus ursinus*	5	Y	FACU
2. *Carex obnupta*	1		OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	6		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**1**	x1 =	**1**
FACW species	**30**	x2 =	**60**
FAC species	**95**	x3 =	**285**
FACU species	**25**	x4 =	**100**
UPL species		x5 =	**0**
Column Totals:	**151** (A)		**446** (B)

Prevalence Index = B/A = **3.0**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular PlantS2
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No

Remarks: Meets Prevalence Index but not Dominance Test

SOIL

Sampling Point: 16

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 4/2	100					SILT LOAM	
3-6	10 YR 5/2	90	10 YR 5/4	10	C	M	SILT LOAM	
6-10	10 YR 5/2	80	7.5 YR 4/6	5	C	M	SILT LOAM	
			10 YR 5/4	10	C	M		
			10 YR 6/1	5	D	M		
10-16	10 YR 5/2	55	7.5 YR 4/6	20	C	M	SILT LOAM	
			10 YR 5/4	15	C	M		
			10 YR 4/1	10	D	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/1/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 17
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes No X	
Wetland Hydrology Present?	Yes No X	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Alopecurus pratensis*	95	Y	FAC
2. *Trifolium repens*	15		FAC
3. *Vicia americana*	2		FAC
4. *Anthoxanthum odoratum*	15		FACU
5. *Taraxacum officinale*	20		FACU
6. *Cirsium arvense*	5		FAC
7. *Holcus lanatus*	5		FAC
8.			
9.			
10.			
11.			
Total Cover:	157		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular PlantS2
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes No X

Remarks:

SOIL

Sampling Point: 17

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 3/1	100					SILT LOAM	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water table Present? Yes _____ No X Depth (inches): _____

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

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/1/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 18
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-2%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes x No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Alopecurus pratensis*	40	Y	FAC
2. *Trifolium repens*	50	Y	FAC
3. *Geranium dissectum*	10		NL
4. *Lysimachia nummularia*	15		FACW
5. *Lotus corniculatus*	5		FAC
6. *Geum macrophyllum*	2		FAC
7. *Holcus lanatus*	2		FAC
8. *Galium trifidum*	2		FACW
9. *Myosotis laxa*	0.01		OBL
10.			
11.			
Total Cover:	126.01		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular PlantS2
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 18

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	98	7.5 YR 4/4	2	C	M	SILT LOAM	
4-9	10 YR 4/1	93	10 YR 6/1	2	D	M	SILT LOAM	
			7.5 YR 3/4	5	C	M		
9-16	10 YR 4/1	85	5 YR 4/4	10	C	M	SILT LOAM	
			10 YR 6/1	5	D	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/1/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 19
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	30	Y	FACW
2. *Populus balsamifera*	15	Y	FAC
3.			
4.			
Total Cover:	45		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Alopecurus pratensis*	40	Y	FAC
2. *Phalaris arundinacea*	50	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	90		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 19

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					SILT LOAM	
4-8	10 YR 3/2	83	10 YR 4/6	7	C	PL	SILTY CLAY L	
			10 YR 4/3	10	C	M		
8-16	10 YR 4/2	92	7.5 YR 4/6	5	C	PL	SILTY CLAY L	
			10 YR 5/6	3	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/1/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 20
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes ____ No X		

Remarks: Hydric soils underlie much of the site, some of which may have formed prior to dam construction, assumed due to its location at the confluence of large dam-regulated rivers (Columbia and Lewis) that contribute to dramatic fluctuations in water level seasonally and annually; however, the plot does not feature hydrophytic vegetation or wetland hydrology

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	40	Y	FACW
2. *Populus balsamifera*	40	Y	FAC
3.			
4.			
Total Cover:	80		
Shrub Stratum			
1. *Symphoricarpos albus*	10	Y	FACU
2. *Rubus armeniacus*	5	Y	FACU
3.			
4.			
5.			
Total Cover:	15		
Herb Stratum			
1. *Arctium lappa*	20		UPL
2. *Stellaria media*	60	Y	FACU
3. *Cardamine pensylvanica*	5		FACW
4. *Osmorhiza berteroi*	15		FACU
5. *Carex obnupta*	5		OBL
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	105		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **40%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x1 = **0**
FACW species ____	x2 = **0**
FAC species ____	x3 = **0**
FACU species ____	x4 = **0**
UPL species ____	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular PlantS2
____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 20

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/2	100					SILT LOAM	
6-16	10 YR 4/2	90	10 YR 4/6	5	C	M	SILT LOAM	
			10 YR 4/3	5	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/1/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 21
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes	No X	

Remarks: Hydric soils underlie much of the site, some of which may have formed prior to dam construction, assumed due to its location at the confluence of large dam-regulated rivers (Columbia and Lewis) that contribute to dramatic fluctuations in water level seasonally and annually; however, the plot does not feature hydrophytic vegetation or wetland hydrology

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	20	Y	FACW
2. *Populus balsamifera*	65	Y	FAC
3.			
4.			
Total Cover:	85		
Shrub Stratum			
1. *Symphoricarpos albus*	30	Y	FACU
2. *Rubus armeniacus*	5		FACU
3. *Oemleria cerasiformis*	5		FACU
4.			
5.			
Total Cover:	40		
Herb Stratum			
1. *Arctium lappa*	5		UPL
2. *Osmorhiza berteroi*	20	Y	FACU
3. *Galium aparine*	25	Y	FACU
4. *Phalaris arundinacea*	5		FACW
5. *Rumex crispus*	5		FAC
6. *Viola glabella*	5		FACW
7. *Prunella vulgaris*	5		FACU
8. *Lysimachia nummularia*	15		FACW
9. *Alopecurus pratensis*	5		FAC
10.			
11.			
Total Cover:	90		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **40%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: 21

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10 YR 3/2	100					SILT LOAM	
9-16	10 YR 4/2	90	7.5 YR 3/4	5	C	M	SILT LOAM	
			10 YR 5/2	5	D	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/1/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 22
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	15	Y	FACW
2. *Populus balsamifera*	15	Y	FAC
3.			
4.			
Total Cover:	30		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Lysimachia nummularia*	40	Y	FACW
2. *Alopecurus pratensis*	80	Y	FAC
3. *Ranunculus repens*	15		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	135		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 22

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	100					SILT LOAM	
3-8	10 YR 4/2	83	7.5 YR 4/4	10	C	M	SILT LOAM	
			10 YR 5/2	5	D	M		
			5 YR 3/4	2	C	PL		
8-16	10 YR 4/2	65	7.5 YR 4/4	15	C	M	SILT LOAM	
			10 YR 5/2	15	D	M		
			5 YR 3/4	5	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/1/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 23
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	40	Y	FACW
2. *Alopecurus pratensis*	80	Y	FAC
3. *Poa annua*	15		FAC
4. *Persicaria hydropiper*	5		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	140		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular PlantS2
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 23

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	80	5 YR 3/4	10	C	M	SILT LOAM	
			10 YR 5/2	5	D	M		
			7.5 YR 4/4	5	C	M		
4-8	10 YR 5/2	78	5 YR 3/4	20	C	M	SILT LOAM	
			10 YR 6/2	2	D	M		
8-12	10 YR 4/2	80	7.5 YR 4/4	10	C	M	SILT LOAM	
			10 YR 6/2	10	D	M		
12-16	10 YR 5/2	85	5 YR 4/4	10	C	M	SILT LOAM	
			7.5 YR 4/4	5	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water table Present?	Yes X	No ___	Depth (inches): 4		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/1/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 24
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: PFOR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	10	Y	FACW
2. *Populus balsamifera*	15	Y	FAC
3.			
4.			
Total Cover:	25		
Shrub Stratum			
1. *Rubus armeniacus*	20	Y	FACU
2.			
3.			
4.			
5.			
Total Cover:	20		
Herb Stratum			
1. *Phalaris arundinacea*	60	Y	FACW
2. *Alopecurus pratensis*	40	Y	FAC
3. *Ranunculus repens*	10		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	110		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 24

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 4/2	90	7.5 yr 4/6	10	c	PL	SILT LOAM	
5-16	10 YR 4/2	70	7.5 YR 4/6	10	C	M	SILT LOAM	
			7.5 YR 3/3	20	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/1/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 25
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: PFOR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	40	Y	FACW
2. *Populus balsamifera*	30	Y	FAC
3.			
4.			
Total Cover:	70		
Shrub Stratum			
1. *Rubus armeniacus*	10	Y	FACU
2. *Rubus leucodermis*	20	Y	FACU
3. *Cornus alba*	5		FACW
4. *Symphoricarpos albus*	5		FACU
5.			
Total Cover:	40		
Herb Stratum			
1. *Phalaris arundinacea*	65	Y	FACW
2. *Lysimachia nummularia*	4		FACW
3. *Ranunculus repens*	20	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	89		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **6** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	**0**
FACW species		x2 =	**0**
FAC species		x3 =	**0**
FACU species		x4 =	**0**
UPL species		x5 =	**0**
Column Totals:	**0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
_____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
_____ 4 - Morphological Adaptation1 (Provide supporting
_____ data in Remarks or on a separate sheet)
_____ 5 - Wetland Non-Vascular PlantS2
_____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: Prevalence Index calculated because Dominace Index=50%

SOIL

Sampling Point: 25

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	100					SILT LOAM	
3-7	10 YR 4/2	90	7.5 YR 3/4	5	C	M	SILT LOAM	
			10 YR 5/1	5	D	M		
7-11	10 YR 4/2	85	10 YR 5/1	10	D	M	SILT LOAM	
			5 YR 4/4	5	C	M		
11-16	10 YR 4/2	65	10 YR 5/2	15	D	M	SILT LOAM	
			10 YR 5/1	10	D	M		
			5 YR 4/4	10	C	M		
			7.5 YR 5/6	10	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/1/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 26
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: PFOR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes No X	
Wetland Hydrology Present?	Yes No X	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera*	80	Y	FAC
2.			
3.			
4.			
Total Cover:	80		
Shrub Stratum			
1. *Populus balsamifera*	5		FAC
2. *Rubus armeniacus*	40	Y	FACU
3.			
4.			
5.			
Total Cover:	45		
Herb Stratum			
1. *Senecio jacobaea*	20		FACU
2. *Stellaria media*	60	Y	FACU
3. *Daucus carota*	5		FACU
4. *Glechoma hederacea*	15		FACU
5. *Lapsana communis*	5		FACU
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	105		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **33%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: 26

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/1	100					SANDY LOAM	
2-16	10 YR 4/2	100					SAND	

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Muck Mineral (S2)
___ Sandy gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ____
Depth (inches): ____

Hydric Soil Present? **Yes** ____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____
Water table Present? Yes ____ No X Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/1/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 27
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: PFOR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	30	Y	FACW
2. *Alopecurus pratensis*	20		FAC
3. *Carex obnupta*	5		OBL
4. *Agrostis capillaris*	40	Y	FAC
5. *Ranunculus repens*	20		FAC
6. *Glechoma hederacea*	20		FACU
7.			
8.			
9.			
10.			
11.			
Total Cover:	135		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 27

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	100					SILT LOAM	
3-10	10 YR 4/2	86	5 YR 3/3	10	C	M	LOAMY SAND	
			5 YR 3/3	2	C	PL		
			10 YR 5/2	2	D	M		
10-16	10 YR 5/2	85	5 YR 3/3	10	C	M	SANDY LOAM	
			7.5 YR 4/3	5	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/12/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 28
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: PFOR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	85	Y	FACW
2.			
3.			
4.			
Total Cover:	85		
Shrub Stratum			
1. *Cornus alba*	25	Y	FACW
2.			
3.			
4.			
5.			
Total Cover:	25		
Herb Stratum			
1. *Phalaris arundinacea*	85	Y	FACW
2. *Carex obnupta*	25	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	110		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 28

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 4/2	90	10 YR 4/4	10	C	M	SILT LOAM	
4-8	10 YR 4/1	85	5 YR 3/4	15	C	M	SILT LOAM	
8-16	10 YR 4/1	75	10 YR 5/1	5	D	M	SILT LOAM	
			5 YR 5/4	15	C	M		
			5 YR 5/4	5	C	PL		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/12/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 29
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: PFOR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	75	Y	FACW
2.			
3.			
4.			
Total Cover:	75		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	85	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	85		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 29

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 4/2	90	5 YR 4/5	10	C	M	SILT LOAM	
8-16	10 YR 4/2	83	5 YR 3/2	5	C	M	SILT LOAM	
			7.5 YR 3/4	10	C	M		
			10 YR 6/1	5	D	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/22/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 30
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes No X**
Hydric Soil Present?	Yes No X		
Wetland Hydrology Present?	Yes No X		

Remarks: Plot meets vegetation indicator criteria, but only when including P Balsamifera, a FAC tree species that is ubiquitous in the Lower Columbia River Estuary. Lack of soils and hydrology indicators demonstrate upland conditions.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera*	60	Y	FAC
2. *Fraxinus latifolia*	15		FACW
3. *Malus fusca*	15		FACW
4.			
Total Cover:	90		
Shrub Stratum			
1. *Rubus ursinus*	20		FACU
2. *Rubus armeniacus*	20		FACU
3. *Cornus alba*	25	Y	FACW
4. *Symphoricarpos albus*	50	Y	FACU
5. *Rosa nutkana*	10		FAC
Total Cover:	125		
Herb Stratum			
1. *Carex obnupta*	2	Y	OBL
2. *Polystichum munitum*	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	7		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **60%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 30

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/2	100					LOAM	
8-16	10 YR 4/3	95	10 YR 5/2	5	D	M	SANDY LOAM	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/22/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 31
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: R1USR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera*	20	Y	FAC
2. *Fraxinus latifolia*	45	Y	FACW
3. *Malus fusca*	25	Y	FACW
4.			
Total Cover:	90		
Shrub Stratum			
1. *Symphoricarpos albus*	65	Y	FACU
2. *Rubus armeniacus*	5		FACU
3. *Rubus leucodermis*	20		FACU
4. *Rosa nutkana*	5		FAC
5. *Cornus alba*	35	Y	FACW
Total Cover:	130		
Herb Stratum			
1. *Carex obnupta*	10	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	10		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust 0		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **5** (A)
Total Number of Dominant Species Across All Strata: **6** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **83%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 31

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					LOAM	
4-7	10 YR 3/2	90	10 YR 4/4	10	C	M	SANDY LOAM	
7-16	10 YR 4/2	70	10 YR 4/4	30	C	M	LOAMY SAND	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/1/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 32
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: water NWI Classification: R1USR
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks: Within Mosaic polygon

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	30	Y	FACW
2. *Populus balsamifera*	20	Y	FAC
3.			
4.			
Total Cover:	50		
Shrub Stratum			
1. *Rubus ursinus*	0.01		FACU
2. *Spiraea douglasii*	30	Y	FACW
3.			
4.			
5.			
Total Cover:	30.01		
Herb Stratum			
1. *Phalaris arundinacea*	65	Y	FACW
2. *Carex obnupta*	45	Y	OBL
3. *Carex rostrata*	0.01		OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	110.01		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **5** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 32

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	90	10 YR 4/3	10	C	M	LOAM	
2-9	10 YR 4/2	85	10 YR 4/4	10	C	M	LOAMY SAND	
			10 YR 5/1	5	D	M		
9-16	10 YR 4/1	80	10 YR 4/3	20	C	M	SAND	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water table Present?	Yes X	No ___	Depth (inches): 9		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 8	**Wetland Hydrology Present?**	**Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/1/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 33
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	40	Y	FACW
2. *Populus balsamifera*	5		FAC
3.			
4.			
Total Cover:	45		
Shrub Stratum			
1. *Cornus alba*	20	Y	FACW
2. *Lonicera involucrata*	20	Y	FAC
3.			
4.			
5.			
Total Cover:	40		
Herb Stratum			
1. *Phalaris arundinacea*	80	Y	FACW
2. *Galium trifidum*	20		FACW
3. *Myosotis laxa*	1		OBL
4. *Veronica anagallis-aquatica*	1		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	102		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 33

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	100					SILT LOAM	
3-6	10 YR 4/2	95	10 YR 3/4	5	C	M	SILT LOAM	
6-16	10 YR 4/2	77	7.5 YR 3/3	20	C	M	SILT LOAM	
			10 YR 4/6	3	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No ___	Depth (inches): ___		
Water table Present?	Yes X	No ___	Depth (inches): 2		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes X** **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/22/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 34
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 x	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No X**
Hydric Soil Present?	Yes X No _____		
Wetland Hydrology Present?	Yes _____ No X		

Remarks: Hydric soils underlie much of the site, some of which may have formed prior to dam construction, assumed due to its location at the confluence of large dam-regulated rivers (Columbia and Lewis) that contribute to dramatic fluctuations in water level seasonally and annually; however, the plot does not feature hydrophytic vegetation or wetland hydrology

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1. *Rubus leucodermis*	20	Y	FACU
2. *Cornus alba*	15		FACW
3. *Frangula purshiana*	10		FAC
4. *Symphoricarpos albus*	45	Y	FACU
5. *Spiraea douglasii*	5		FACW
Total Cover:	95		
Herb Stratum			
1. *Phalaris arundinacea*	1		FACW
2. *Galium aparine*	10	Y	FACU
3. *Polystichum munitum*	1		FACU
4. *Cirsium arvense*	1		FAC
5. *Carex obnupta*	5	Y	OBL
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	18		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **25%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
_____ 1 - Rapid Test for Hydrophytic Vegetation
_____ 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
_____ 4 - Morphological Adaptation1 (Provide supporting
_____ data in Remarks or on a separate sheet)
_____ 5 - Wetland Non-Vascular PlantS2
_____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks:

SOIL

Sampling Point: 34

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					SANDY LOAM	
4-9	10 YR 4/2	90	7.5 YR 4/4	10	C	M	SANDY LOAM	
9-16	10 YR 3/2	90	7.5 4/4	5	C	M	SANDY LOAM	
			10 YR 5/2	5	D	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/22/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 35
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	65	Y	FACW
2. *Populus balsamifera*	30	Y	FAC
3.			
4.			
Total Cover:	95		
Shrub Stratum			
1. *Symphoricarpos albus*	5	Y	FACU
2. *Lonicera involucrata*	20	Y	FAC
3.			
4.			
5.			
Total Cover:	25		
Herb Stratum			
1. *Phalaris arundinacea*	85	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	85		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 35

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 YR 4/4	100					SILT LOAM	
3-6	10 YR 3/2	80	10 YR 5/6	10	C	M	SILT LOAM	
			10 YR 5/2	10	D	M		
6-16	10 YR 5/1	65	10 YR 5/6	20	C	M	SILT LOAM	
			7.5 YR 4/3	10	C	M		
			10 YR 6/1	5	D	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 5/22/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 36
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes No X**
Hydric Soil Present?	Yes No X		
Wetland Hydrology Present?	Yes No X		

Remarks: Vegetation community is typical of riparian/floodplain forests featuring a mix of upland and wetland plants adapted to fluctuating hydrological condtions; however, no hydric soil or wetland hydrological indicators were present.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera*	20	Y	FAC
2. *Fraxinus latifolia*	5	Y	FACW
3.			
4.			
Total Cover:	25		
Shrub Stratum			
1. *Rubus leucodermis*	25	Y	FACU
2. *Cornus alba*	15		FACW
3. *Rubus laciniatus*	15		FACU
4. *Spiraea douglasii*	5		FACW
5. *Symphoricarpos albus*	60	Y	FACU
6. *Lonicera involucrata*	20		FAC
Total Cover:	140		
Herb Stratum			
1. *Phalaris arundinacea*	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	5		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **60%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FACU species	x4 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 36

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	100					SANDY LOAM	
3-5	10 YR 4/2	85	7.5 YR 4/4	10	C	M	SANDY LOAM	
			5 YR 4/4	5	C	PL		NOT LIVING ROOTS
5-10	10 YR 4/3	75	7.5 YR 4/4	10	C	M	SANDY LOAM	
			5 YR 4/4	5	C	M		
			10 YR 4/2	10	D	M		
10-16	5 YR 4/3	90	10 YR 4/2	10	D	M	SAND LOAM	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water table Present? Yes _____ No X Depth (inches): _____

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

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 7/18/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 37
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks: Within Mosaic polygon

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera*	20	Y	FAC
2. *Fraxinus latifolia*	40	Y	FACW
3.			
4.			
Total Cover:	60		
Shrub Stratum			
1. *Rubus leucodermis*	10	Y	FACU
2.			
3.			
4.			
5.			
6.			
Total Cover:	10		
Herb Stratum			
1. *Phalaris arundinacea*	90	Y	FACW
2. *Galium aparine*	1		FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	91		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FACU species	x4 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 37

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100					SILT LOAM	
2-7	10 YR 4/2	90	7.5 YR 4/1	5	D	M	SANDY LOAM	
			7.5 YR 3/3	5	C	M		
7-16	10 YR 5/2	75	7.5 YR 3/4	15	C	M	SANDY LOAM	
			10 YR 6/1	5	D	M		
			10 YR 5/4	5	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 7/18/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 38
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): PFO/SSC Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	5	Y	FACW
2.			
3.			
4.			
Total Cover:	5		
Shrub Stratum			
1. *Salix lasiandra*	10	Y	FACW
2.			
3.			
4.			
5.			
Total Cover:	10		
Herb Stratum			
1. *Phalaris arundinacea*	40	Y	FACW
2. *Galium trifidum*	1		FACW
3. *Alopecurus pratensis*	40	Y	FAC
4. *Agrostis capillaris*	10		FAC
5. *Lysimachia nummularia*	8		FACW
6. *Rumex crispus*	2		FAC
7. *Geranium dissectum*	1		NOL
8.			
9.			
10.			
11.			
Total Cover:	102		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular PlantS2
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 38

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 4/2	95	10 Y R3/4	5	C	M	SILT LOAM	
3-6	10 YR 5/2	80	7.5 YR 4/4	10	C	M	SILT LOAM	
			7.5 YR 3/4	5	C	M		
			10 YR 5/1	5	D	M		
6-12	10 YR 5/1	68	7.5 YR 4/4	20	C	M	SILT LOAM	
			7.5 YR 3/3	10	C	M		
			7.5 YR 4/4	2	C	PL		
12-16	10 YR 6/2	80	10 YR 4/4	5	C	M	SILT LOAM	
			7.5 YR 5/6	10	C	M		
			7.5 YR 5/6	5	C	PL		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 7/18/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 39
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S2, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): PEMA Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	15		FACW
2. *Geranium dissectum*	5		NOL
3. *Alopecurus pratensis*	40	Y	FAC
4. *Agrostis capillaris*	30	Y	FAC
5. *Lysimachia nummularia*	5		FACW
6. *Trifolium repens*	10		FAC
7. *Persicaria amphibia*	1		OBL
8.			
9.			
10.			
11.			
Total Cover:	106		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 39

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					SILT LOAM	
4-6	10 YR 4/2	85	10 YR 4/4	10	C	M	SILT LOAM	
			5 YR 3/3	5	C	M		
6-8	10 YR 4/2	50	10 YR 2/2	40	C	M	SILT LOAM	MIXED MATRIX/DARK ORGANIC
			10 YR 3/4	10	C	M		MATERIAL COATING PEDS
8-16	10 YR 5/2	73	10 YR 4/6	7	C	M	SILT LOAM	
			10 YR 2/2	15	C	M		ORGANIC MATERIAL COATING PEDS
			7.5 YR 4/6	5	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 7/18/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 40
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): PEMA Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes No X**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes No X		

Remarks: Vegetation community is typical of riparian/floodplain forests featuring a mix of upland and wetland plants adapted to fluctuating hydrological condtion. Hydric soils underlie much of the site, some of which may have formed prior to dam construction, assumed due to its location at the confluence of large dam-regulated rivers (Columbia and Lewis) that contribute to dramatic fluctuations in water level seasonally and annually; however, the plot does not feature wetland hydrology.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Agrostis capillaris*	40	Y	FAC
2. *Leucanthemum vulgare*	5		FACU
3. *Alopecurus pratensis*	30	Y	FAC
4. *Geranium dissectum*	5		NOL
5. *Ranunculus repens*	5		FAC
6. *Trifolium repens*	10		FAC
7. *Holcus lanatus*	5		FAC
8. *Cirsium arvense*	5		FAC
9. *Lolium perenne*	5		FAC
10.			
11.			
Total Cover:	110		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular PlantS2
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 40

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/2	90	10 YR 3/4	5	C	M	SILT LOAM	
			10 YR 4/2	5	D	M		
8-16	10 YR 4/2	95	10 YR 4/6	5	C	M	SILT LOAM	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 7/18/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 41
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): PEMA Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Water NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes x No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	25	Y	FACW
2. *Lysimachia nummularia*	30	Y	FACW
3. *Alopecurus geniculatus*	25	Y	OBL
4. *Galium trifidum*	3		FACW
5. *Eleocharis obtusa*	2		OBL
6. *Mentha arvensis*	5		FACW
7.			
8.			
9.			
10.			
11.			
Total Cover:	90		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 41

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 5/2	88	7.5 YR 4/6	7	C	M	SILT LOAM	
			10 YR 6/2	5	D	M		
4-16	10 YR 6/2	73	7.5 YR 4/6	20	C	M	SILT LOAM	
			7.5 YR 4/6	5	C	PL		
			10 YR 6/1	2	D	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No ___	Depth (inches): ___		
Water table Present?	Yes X	No ___	Depth (inches): 6		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 4	**Wetland Hydrology Present?**	**Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 7/18/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 42
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): PEMA Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes No X**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes No X		

Remarks: Vegetation community is typical of riparian/floodplain forests featuring a mix of upland and wetland plants adapted to fluctuating hydrological condtion. Hydric soils underlie much of the site, some of which may have formed prior to dam construction, assumed due to its location at the confluence of large dam-regulated rivers (Columbia and Lewis) that contribute to dramatic fluctuations in water level seasonally and annually; however, the plot does not feature wetland hydrology.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Agrostis capillaris*	40	Y	FAC
2. *Leucanthemum vulgare*	1		FACU
3. *Alopecurus pratensis*	10		FAC
4. *Geranium dissectum*	5		NOL
5. *Phalaris arundinacea*	5		FACW
6. *Trifolium repens*	5		FAC
7. *Holcus lanatus*	30	Y	FAC
8. *Anthoxanthum odoratum*	30	Y	FACU
9. *Lolium perenne*	10		FAC
10.			
11.			
Total Cover:	136		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular PlantS2
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 42

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/2	85	7.5 YR 4/6	10	C	M	SILT LOAM	
			10 YR 5/2	5	D	M		
6-16	10 YR 5/2	80	7.5 YR 4/4	10	C	M	SILT LOAM	
			7.5 YR 4/6	10	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 7/18/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 43
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): PEMA Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	30	Y	FACW
2. *Lysimachia nummularia*	10		FACW
3. *Alopecurus pratensis*	40	Y	FAC
4. *Holcus lanatus*	10		FAC
5. *Agrostis capillaris*	20		FAC
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	110		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 43

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 4/1	78	7.5 YR 4/6	10	C	M	SILT LOAM	
			7.5 YR 3/4	7	C	M		
			10 YR 6/1	5	D	M		
8-12	10 YR 6/2	75	7.5 YR 4/6	15	C	M	SILT LOAM	
			7.5 YR 3/4	10	C	M		
12-16	10 YR 3/2	85	10 YR 4/6	5	C	M	SILT LOAM	
			10 YR 5/2	10	D	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 7/18/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 44
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): PEMA Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	100	Y	FACW
2. *Eleocharis palustris*	2		OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	102		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 44

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 4/1	100					SCL	
3-8	10 YR 5/1	80	7.5 YR 4/4	20	C	M	SCL	
8-16	10 YR 6/1	70	7.5 YR 4/6	30	C	M	SCL	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No	X	Depth (inches):	___
Water table Present?	Yes X	No	___	Depth (inches):	4
Saturation Present? (includes capillary fringe)	Yes X	No	___	Depth (inches):	0

Wetland Hydrology Present? **Yes X** **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 7/18/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 45
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): PEMA Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1. *Salix lasiandra*	30	Y	FACW
2.			
3.			
4.			
5.			
Total Cover:	30		
Herb Stratum			
1. *Phalaris arundinacea*	50	Y	FACW
2. *Lycopus americanus*	1		OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	51		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 45

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					LOAM	HIGH ORGANIC MATTER CONTENT
4-10	10 YR 5/1	90	10 YR 4/6	10	C	M	SCL	
10-16	10 YR 5/1	65	10 YR 4/6	30	C	M	SCL	
			7.5 YR 4/4	5	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water table Present?	Yes	X	No	___	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 7/18/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 46
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 5-7%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Quercus garryana*	60	Y	FACU
2. *Fraxinus latifolia*	15	Y	FACW
3.			
4.			
Total Cover:	75		
Shrub Stratum			
1. *Symphoricarpos albus*	15		FACU
2. *Oemleria cerasiformis*	30	Y	FACU
3. *Rubus armeniacus*	60	Y	FACU
4.			
5.			
Total Cover:	105		
Herb Stratum			
1. *Hypericum perforatum*	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	5		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **20%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular PlantS2
____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 46

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 3/2	85	Gravel	5		M	SILT LOAM	
			Rock	10		M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Shovel Refusal - rock
Depth (inches): 10

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 7/18/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 47
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	50	Y	FACW
2.			
3.			
4.			
Total Cover:	50		
Shrub Stratum			
1. *Salix lasiandra*	20	Y	FACW
2.			
3.			
4.			
5.			
Total Cover:	20		
Herb Stratum			
1. *Phalaris arundinacea*	70	Y	FACW
2. *Carex obnupta*	20	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	90		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 47

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 4/2	100					SILT LOAM	
3-16	10 YR 5/2	75	10 YR 4/4	10	C	M	SILT LOAM	
			7.5 YR 4/4	5	C	M		
			10 YR 5/1	5	D	M		
			7.5 YR 3/3	5	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 7/18/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 48
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Water NWI Classification: PEM1R
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	30	Y	FACW
2. *Eleocharis palustris*	30	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	60		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 48

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 5/1	85	7.5 YR 4/4	10	C	PL	SILT LOAM	
			7.5 YR 4/4	5	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water table Present?	Yes	X	No	___	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 7/18/2014
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 49
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: PFO1R
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 ____	**Is the Sampled Area within a Wetland?**	**Yes X No ____**
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	30	Y	FACW
2.			
3.			
4.			
Total Cover:	30		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	100	Y	FACW
2. *Carex obnupta*	10		OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	110		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular PlantS2
____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 49

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 4/2	90	10 YR 4/4	5	C	M	SILT LOAM	
			10 YR 6/1	5	D	M		
3-16	10 YR 5/1	75	10 YR 3/4	5	C	M	SILT LOAM	
			7.5 YR 4/4	20	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 11/11/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 50
Investigator(s): B. Haddaway, K. Biafora Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 3-5%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Olympic very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	10	Y	FACW
2.			
3.			
4.			
Total Cover:	10		
Shrub Stratum			
1. *Rosa nutkana*	30	Y	FAC
2. *Crataegus douglasii*	10	Y	FAC
3.			
4.			
5.			
Total Cover:	40		
Herb Stratum			
1. *Phalaris arundinacea*	40	Y	FACW
2. *Rubus ursinus*	30	Y	FACU
3. *Galium aparine*	2		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	72		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 50

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					SILT LOAM	
4-9	10 YR 3/1	80	10 YR 5/2	15	D	M	SILT LOAM	
			5 YR 4/6	5	C	M		
9-16	10 YR 2/1	90	10 YR 4/1	10	D	M	SILT LOAM	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 11/11/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 51
Investigator(s): B. Haddaway, K. Biafora Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 5-8%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Olympic very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Pseudotsuga menziesii*	50	Y	FACU
2. *Quercus garryana*	30	Y	FACU
3.			
4.			
Total Cover:	80		
Shrub Stratum			
1. *Symphoricarpos albus*	15	Y	FACU
2. *Amelanchier alnifolia*	40	Y	FACU
3.			
4.			
5.			
Total Cover:	55		
Herb Stratum			
1. *Polystichum munitum*	50	Y	FACU
2. *Geranium robertianum*	15	Y	UPL
3. *Claytonia perfoliata*	10		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	75		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)
Total Number of Dominant Species Across All Strata: **6** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular PlantS2
____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ____ **No X**

Remarks:

SOIL

Sampling Point: 51

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 2/1	100					SL	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Rock

Depth (inches): 3

Hydric Soil Present? **Yes** ___ **No** X

Remarks: Area underlain by basalt flow

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 11/11/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 52
Investigator(s): B. Haddaway, K. Biafora Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Olympic very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	20	Y	FACW
2.			
3.			
4.			
Total Cover:	20		
Shrub Stratum			
1. *Spiraea douglasii*	15	Y	FACW
2.			
3.			
4.			
5.			
Total Cover:	15		
Herb Stratum			
1. *Phalaris arundinacea*	100	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular PlantS2
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 52

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/1	100					SILT LOAM	
3-7	10 YR 3/1	85	10 YR 4/4	10	C	M	SILT LOAM	
			10 YR 4/1	5	D	M		
7-16	10 YR 2/1	100					SILT LOAM	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 11/11/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 53
Investigator(s): B. Haddaway, K. Biafora Section, Township, Range: DLC37, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 5-8%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Olympic very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Pseudotsuga menziesii*	15	Y	FACU
2.			
3.			
4.			
Total Cover:	15		
Shrub Stratum			
1. *Symphoricarpos albus*	40	Y	FACU
2. *Rubus leucodermis*	30	Y	FACU
3. *Rosa nutkana*	10		FAC
4.			
5.			
Total Cover:	80		
Herb Stratum			
1. *Dactylis glomerata*	10	Y	FACU
2. *Geum macrophyllum*	5	Y	FAC
3. *Vicia americana*	2		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	17		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **20%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular PlantS2
____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 53

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 2/1	100					SL	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S2)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Rock

Depth (inches): 4

Hydric Soil Present? **Yes** ___ **No** X

Remarks: Area underlain by basalt flow

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

Farm Fields and Lancaster Lake Data Forms

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

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 5/28/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 1
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	30	Y	FACW
2. *Alopecurus geniculatus*	25	Y	OBL
3. *Lysimachia nummularia*	20	Y	FACW
4. *Holcus lanatus*	20	Y	FAC
5. *Mentha pulegium*	5		OBL
6. *Ranunculus repens*	5		FAC
7. *Myosotis scorpioides*	15		FACW
8. *Festuca arundinacea*	10		FAC
9. *Poa trivialis*	10		FAC
10.			
11.			
Total Cover:	140		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 4/2	80	10 YR 4/4	10	C	M	SILT LOAM	
			4/5BG	10	D	M		
4-9	10 YR 4/2	85	10 YR 4/4	5	C	M	SILT LOAM	
			10 YR 4/4	5	C	PL		
			10 YR 6/1	5	D	M		
9-12	10 YR 5/2	75	7.5 YR 4/4	10	C	M	SCL	
			4/N	10	D	M		
			7.5 YR 4/4	5	C	PL		
12-16	7.5 YR 5/2	80	4/N	10	D	M	SCL	
			10 YR 6/1	5	D	M		
			7.5 YR 3/4	5	C	PL		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water table Present?	Yes X	No ___	Depth (inches): 11		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 9	**Wetland Hydrology Present?**	**Yes X** **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 5/28/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 2
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Festuca arundinacea*	40	Y	FAC
2. *Holcus lanatus*	25	Y	FAC
3. *Dactylis glomerata*	15		FACU
4. *Trifolium repens*	20		FAC
5. *Lolium perenne*	5		FAC
6. *Agrostis capillaris*	20		FAC
7. *Daucus carota*	0.01		FACU
8. *Hypochaeris radicata*	0.01		FACU
9. *Anthoxanthum odoratum*	0.01		FACU
10.			
11.			
Total Cover:	125.03		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	80	10 YR 3/6	5	C	M	SCL	
			10 YR 5/6	10	C	M		
			10 YR 6/1	5	D	M		
3-10	10 YR 4/2	87	10 YR 4/6	10	C	M	SCL	
			7.5 YR 4/6	3	C	PL		
10-16	10 YR 5/2	90	7.5 YR 5/6	5	C	M	SCL	
			7.5 YR 5/8	5	C	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water table Present?	Yes	X	No	___	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 9

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 5/28/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 3
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes	No X	

Remarks: Plot is located in levee protected floodplain of the Lewis and Columbia Rivers in an historically tilled and seeded pasture (within 3 years). Due to known disturbance of soil and vegetation, the delineation of wetland boundaries is largely based on observed direct hydrology (water table/saturation) and colonization by non-seeded species.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Festuca arundinacea*	20		FAC
2. *Holcus lanatus*	30	Y	FAC
3. *Dactylis glomerata*	40	Y	FACU
4. *Trifolium pratense*	0.01		FACU
5. *Lolium perenne*	10		FAC
6. *Agrostis capillaris*	20		FAC
7. *Cirsium arvense*	0.01		FAC
8. *Hypochaeris radicata*	0.01		FACU
9. *Anthoxanthum odoratum*	5		FACU
10.			
11.			
Total Cover:	125.03		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10 YR 3/2	100					LOAM	
7-11	10 YR 3/2	95	10 YR 4/2	5	D	M	LOAM	
11-18	10 YR 4/2	85	10 YR 4/4	10	C	M	SILT LOAM	
			7.5 YR 4/4	5	C	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 5/28/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 4
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes	No X	

Remarks: Plot is located in levee protected floodplain of the Lewis and Columbia Rivers in an historically tilled and seeded pasture (within 3 years). Due to known disturbance of soil and vegetation, the delineation of wetland boundaries is largely based on observed direct hydrology (water table/saturation) and colonization by non-seeded species. Plot does not support hydrophytic plants or feature observable soil saturation within 16" of soil surface. Plot does not appear to recieve sufficient soil saturation to support wetland conditions, comparing elevation to river stage as describe in report Methods section.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Festuca arundinacea*	25	Y	FAC
2. *Poa trivialis*	10		FAC
3. *Dactylis glomerata*	20	Y	FACU
4. *Trifolium pratense*	5		FACU
5. *Plantago lanceolata*	15	Y	FACU
6. *Hypochaeris radicata*	15	Y	FACU
7. *Alopecurus pratensis*	5		FAC
8. *Trifolium repens*	10		FAC
9.			
10.			
11.			
Total Cover:	105		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **25%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: 4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100					SILT LOAM	
2-7	10 YR 4/2	80	7.5 YR 4/4	20	C	M	SILT LOAM	
7-12	10 YR 4/2	75	5 YR 3/4	15	C	M	SILT LOAM	
			5 YR 3/4	5	C	PL		
			10 YR 5/1	5	D	M		
12-16	10 YR 5/1	65	5 YR 3/4	25	C	M	SILT LOAM	
			5 YR 3/4	5	C	PL		
			7. 5 YUR 3/4	5	C	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks: Oxidized rhizospheres observed, but root may have recolonized existing pore. Plot elevation does not appear to receive sufficient soil saturation to meet wetland criteria based on river stage data.

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

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 5/28/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 5
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Festuca arundinacea*	60	Y	FAC
2. *Holcus lanatus*	45	Y	FAC
3. *Juncus tenuis*	3		FAC
4. *Ranunculus repens*	5		FAC
5. *Lysimachia nummularia*	5		FACW
6. *Persicaria maculosa*	3		FACW
7.			
8.			
9.			
10.			
11.			
Total Cover:	121		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 5

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 5/2	70	5 YR 4/6	10	C	PL	SCL	
			5 YR 5/6	10	C	M		
			5/N	10	D	M		
5-16	10YR 5/2	45	5 YR 4/6	15	C	M	SCL	
			5 YR 5/6	30	C	M		
			5/N	10	D	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water table Present?	Yes X	No ___	Depth (inches): 14		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 10	**Wetland Hydrology Present?**	**Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 5/28/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 6
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Festuca arundinacea*	20	Y	FAC
2. *Holcus lanatus*	15		FAC
3. *Alopecurus pratensis*	20	Y	FAC
4. *Agrostis capillaris*	10		FAC
5. *Trifolium repens*	15		FAC
6. *Ranunculus repens*	20	Y	FAC
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 6

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 4/2	100					SILT LOAM	
2-9	7.5 YR 5/1	68	7.5 YR 4/4	15	C	M	SILT LOAM	
			10 YR 6/1	10	D	M		
			5 YR 4/6	5	C	M		
			5 YR 4/6	2	C	PL		
9-16	5/N	70	5 YR 4/6	20	C	M	SILT LOAM	
			5 YR 4/6	5	C	PL		
			10 YR 6/1	5	C	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No	X	Depth (inches):	___
Water table Present?	Yes X	No	___	Depth (inches):	10
Saturation Present? (includes capillary fringe)	Yes X	No	___	Depth (inches):	8

Wetland Hydrology Present? **Yes X** **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 5/28/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 7
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 ____	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes ____ No X		

Remarks: Plot is located in levee protected floodplain of the Lewis and Columbia Rivers in an historically tilled and seeded pasture (within 3 years). Due to known disturbance of soil and vegetation, the delineation of wetland boundaries is largely based on observed direct hydrology (water table/saturation) and colonization by non-seeded species. Plot does not support hydrophytic plants other than seeded species or feature observable saturation within 16" of soil surface. Plot is located at an elevation that does not appear to support wetland hydrologic conditions, based on review of river stage data as described in Methods section of report.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Festuca arundinacea*	45	Y	FAC
2. *Holcus lanatus*	20		FAC
3. *Agrostis capillaris*	10		FAC
4. *Dactylis glomerata*	15		FACU
5. *Plantago lanceolata*	20		FACU
6. *Trifolium pratense*	5		FACU
7. *Ranunculus repens*	5		FAC
8. *Trifolium repens*	30	Y	FAC
9.			
10.			
11.			
Total Cover:	150		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	**0**
FACW species		x2 =	**0**
FAC species	**110**	x3 =	**330**
FACU species	**40**	x4 =	**160**
UPL species		x5 =	**0**
Column Totals:	**150** (A)		**490** (B)

Prevalence Index = B/A = **3.3**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: Vegetation does not satisfy Prevalence Index. Plot is located in area seeded with FAC pasture species.

SOIL

Sampling Point: 7

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	75	10 YR 5/2	10	D	M	SCL	
			7.5 YR 5/6	10	C	M		
			5 YR 5/6	5	C	PL		
4-16	10 YR 5/2	80	5 YR 4/6	10	C	PL	SILT LOAM	DARK, CHARCOAL-LIKE
			7.5 YR 5/8	10	C	M		MATERIAL IN MATRIX

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: Soil has been tilled within the past 3 years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 5/28/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 8
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes** **No X**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes No X		

Remarks: Plot is located in levee protected floodplain of the Lewis and Columbia Rivers in an historically tilled and seeded pasture (within 3 years). Due to known disturbance of soil and vegetation, the delineation of wetland boundaries is largely based on observed direct hydrology (water table/saturation) and colonization by non-seeded species. Plot does not support hydrophytic plants other than seeded species or feature observable saturation within 16". Plot is located at an elevation that does not appear to recieve sufficientsoil saturation based on its elevation compared to river stage data as described in report Methods section.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Alopecurus pratensis*	1		FAC
2. *Holcus lanatus*	30	Y	FAC
3. *Agrostis capillaris*	60	Y	FAC
4. *Anthoxanthum odoratum*	20		FACU
5. *Plantago lanceolata*	2		FACU
6. *Trifolium pratense*	5		FACU
7. *Lolium perenne*	5		FAC
8. *Trifolium repens*	20		FAC
9. *Hypochaeris radicata*	5		FACU
10. *Bromus commutatus*	1		UPL
11.			
Total Cover:	149		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust 0		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species		x1 = **0**
FACW species		x2 = **0**
FAC species	**116**	x3 = **348**
FACU species	**32**	x4 = **128**
UPL species	**1**	x5 = **5**
Column Totals:	**149** (A)	**481** (B)

Prevalence Index = B/A = **3.2**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks: Vegetation does not satisfy Prevalence Index. Dominant species are seeded; non seeded species are predominantly FACU and UPL.

SOIL

Sampling Point: 8

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					SILT LOAM	
4-9	7.5 YR 4/1	80	10 YR 4/4	5	C	M	SILT LOAM	
			5 YR 3/4	10	C	M		
			7.5 YR 5/1	5	D	M		
9-16	10 YR 5/2	80	5 YR 4/4	10	C	M	SILT LOAM	
			10 YR 5/1	5	D	M		
			5 YR 3/4	5	C	PL		NOT ALONG LIVING ROOTS

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: Soil has been tilled within the past 3 years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 5/28/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 9
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Poa trivialis*	15	Y	FAC
2. *Holcus lanatus*	15	Y	FAC
3. *Alopecurus pratensis*	15	Y	FAC
4. *Lotus corniculatus*	15	Y	FAC
5. *Trifolium repens*	20	Y	FAC
6. *Ranunculus repens*	20	Y	FAC
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **6** (A)
Total Number of Dominant Species Across All Strata: **6** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 9

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	7.5 YR 4/1	70	5 YR 3/4	15	C	M	SILT LOAM	
			10 YR 5/2	10	D	M		
			10 YR 4/4	5	C	M		
9-11	10 YR 5/2	75	5 YR 4/4	25	C	M	SILT LOAM	
11-16	7.5 YR 4/1	60	4/N	30	D	M	SILT LOAM	
			5 YR 4/4	10	C	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water table Present?	Yes	X	No	___	Depth (inches): 14
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 11

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 5/28/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 10
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes	No X	

Remarks: Plot is located in levee protected floodplain of the Lewis and Columbia Rivers in an historically tilled and seeded pasture (within 3 years). Due to known disturbance of soil and vegetation, the delineation of wetland boundaries is largely based on observed direct hydrology (water table/saturation) and colonization by non-seeded species. Plot does not support hydrophytic plants other than seeded species or feature hydrological indicators.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Medicago lupulina*	10		FACU
2. *Rumex acetosella*	5		FACU
3. *Equisetum arvense*	1		FAC
4. *Alopecurus pratensis*	1		FAC
5. *Plantago lanceolata*	5		FACU
6. *Trifolium repens*	25	Y	FAC
7. *Hypochaeris radicata*	1		FACU
8. *Bromus commutatus*	75	Y	UPL
9.			
10.			
11.			
Total Cover:	123		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: 10

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/3	95	5 YR 3/4	5	C	M	SILT LOAM	
3-8	10 YR 4/2	89	5 YR 4/6	10	C	PL	SILT LOAM	NOT ALONG LIVING ROOTS
			7.5 YR 4/6	1	C	M		
8-10	10 YR 4/2	80	7.5 YR 4/6	10	C	M	SILT LOAM	
			10 YR 5/4	10	C	M		
10-16	10 YR 3/2	95	5 YR 4/6	5	C	M	SAND	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: Soil has been tilled within the past 3 years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 5/28/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 11
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes	No X	

RRemarks: Plot is located in levee protected floodplain of the Lewis and Columbia Rivers in an historically tilled and seeded pasture (within 3 years). Due to known disturbance of soil and vegetation, the delineation of wetland boundaries is largely based on observed direct hydrology (water table/saturation) and colonization by non-seeded species. Plot does not support hydrophytic plants other than seeded species or feature observable soil saturatio witihin 16" of soil surface.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Anthoxanthum odoratum*	60	Y	FACU
2. *Festuca arundinacea*	15		FAC
3. *Ranunculus repens*	15		FAC
4. *Poa trivialis*	10		FAC
5. *Holcus lanatus*	5		FAC
6. *Trifolium repens*	20	Y	FAC
7. *Hypochaeris radicata*	15		FACU
8.			UPL
9.			
10.			
11.			
Total Cover:	140		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: 11

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5 YR 4/1	100					SILT LOAM	
2-10	7.5 YR 4/1	85	5 YR 4/4	5	C	PL	SILT LOAM	
			5 YR 4/4	5	C	M		
10-12	10 YR 5/2	75	10 YR 4/4	25	C	M	SILT LOAM	
12-16	7.5 YR 4/1	80	5 YR 4/4	10	C	PL	SILT LOAM	
			10 YR 4/4	10	C	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: Soil has been tilled within the past 3 years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

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

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 5/28/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 12
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Anthoxanthum odoratum*	30	Y	FACU
2. *Festuca arundinacea*	30	Y	FAC
3. *Ranunculus repens*	3		FAC
4. *Juncus tenuis*	0.1		FAC
5. *Holcus lanatus*	25		FAC
6. *Trifolium repens*	30	Y	FAC
7. *Hypochaeris radicata*	0.1		FACU
8. *Agrostis capillaris*	20		FAC
9. *Lolium perenne*	5		FAC
10. *Alopecurus pratensis*	5		FAC
11.			
Total Cover:	148.2		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 12

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	100					SILT LOAM	
3-10	10 YR 4/2	87	7.5 YR 4/6	10	C	PL	SILT LOAM	
			10 YR 4/3	3	C	M		
10-16	10 YR 6/2	80	7.5 YR 5/6	10	C	M	SILT LOAM	
			7.5 YR 4/6	10	C	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: Soil has been tilled within the past 3 years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water table Present?	Yes	X	No	___	Depth (inches): 14
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 12

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 5/28/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 13
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Anthoxanthum odoratum*	30	Y	FACU
2. *Trifolium pratense*	5		FACU
3. *Ranunculus repens*	5		FAC
4. *Lotus corniculatus*	10		FAC
5. *Holcus lanatus*	25	Y	FAC
6. *Trifolium repens*	10		FAC
7. *Hypochaeris radicata*	0.1		FACU
8. *Agrostis capillaris*	20	Y	FAC
9. *Alopecurus pratensis*	10		FAC
10.			
11.			
Total Cover:	115.1		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	80	7.5 YR 5/8	10	C	M	SILT LOAM	
			5 YR 4/6	10	C	PL		
3-7	10 YR 5/2	68	10 YR 5/6	25	C	M	SILT LOAM	
			10 YR 5/6	5	C	PL	SILT LOAM	
			10 YR 6/2	2	D	M		
7-16	10 YR 5/1	68	7.5 YR 5/4	30	C	M	SILT LOAM	
			10 YR 6/1	2	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: Soil has been tilled within the past 3 years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water table Present?	Yes	X	No	___	Depth (inches): 16
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 14

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 5/28/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 14
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes	No X	

Remarks: Plot is located in levee protected floodplain of the Lewis and Columbia Rivers in an historically tilled and seeded pasture (within 3 years). Due to known disturbance of soil and vegetation, the delineation of wetland boundaries is largely based on observed direct hydrology (water table/saturation) and colonization by non-seeded species. Plot does not support hydrophytic plants or feature hydrological indicators.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Anthoxanthum odoratum*	45	Y	FACU
2. *Festuca arundinacea*	15		FAC
3. *Ranunculus repens*	10		FAC
4. *Plantago lanceolata*	15		FACU
5. *Holcus lanatus*	10		FAC
6. *Trifolium repens*	5		FAC
7. *Leucanthemum vulgare*	10		FACU
8. *Lotus corniculatus*	5		FAC
9.			
10.			
11.			
Total Cover:	115		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 YR 4/1	95	5 YR 4/4	5	C	M	SILT LOAM	
3-10	7.5 YR 4/1	85	5 YR 4/4	10	C	PL	SILT LOAM	
			5 YR 4/4	5	C	M		
10-12	10 YR 5/2	85	10 YR 4/4	15	C	M	SILT LOAM	
12-16	7.5 YR 4/1	75	5 YR 4/4	20	C	M	SILT LOAM	
			10 YR 6/1	5	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: Soil has been tilled within the past 3 years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes X No ___ Depth (inches): 21

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table lies below depth criteria for wetland hydrology.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 6/19/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 15
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: PEMC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes ____ No X		

Remarks: Plot is located in levee protected floodplain of the Lewis and Columbia Rivers in an historically tilled and seeded pasture (within 3 years). Due to known disturbance of soil and vegetation, the delineation of wetland boundaries is largely based on observed direct hydrology (water table/saturation) and colonization by non-seeded species. Plot does not support hydrophytic plants other than seeded species or feature hydrological indicators.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Anthoxanthum odoratum*	50	Y	FACU
2. *Hypochaeris radicata*	0.1		FACU
3. *Agrostis capillaris*	20	Y	FAC
4. *Plantago lanceolata*	5		FACU
5. *Holcus lanatus*	15		FAC
6. *Trifolium repens*	5		FAC
7. *Alopecurus pratensis*	10		FAC
8.			
9.			
10.			
11.			
Total Cover:	105.1		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x1 = **0**
FACW species ____	x2 = **0**
FAC species ____	x3 = **0**
FACU species ____	x4 = **0**
UPL species ____	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					SILT LOAM	
4-12	10 YR 4/2	85	10 YR 4/6	10	C	M	SILT LOAM	
			10 YR 5/2	5	D	M		
12-16	10 YR 5/2	85	10 YR 6/2	5	D	M	SILT LOAM	
			10 YR 4/6	15	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: Soil has been tilled within the past 3 years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table lies below depth criteria for wetland hydrology.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 6/19/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 13
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 ____	**Is the Sampled Area within a Wetland?**	**Yes X No ____**
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____		

Remarks: Observable hydrology lacking, but colonizing FACW and OBL species

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Holcus lanatus*	50	Y	FAC
2. *Agrostis capillaris*	50	Y	FAC
3. *Phalaris arundinacea*	5		FACW
4. *Lotus corniculatus*	1		FAC
5. *Persicaria amphibia*	15		OBL
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	121		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL Sampling Point: 16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 4/3	100					SANDY LOAM	
2-12	10 YR 5/2	60	7.5 YR 4/4	25	C	M	LOAMY SAND	10% COBBLES
			7.5 YR 4/4	5	C	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal-cobbles
Depth (inches): 12

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 6/26/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 17
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: PEMC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes	No X	

Remarks: Plot is located in levee protected floodplain of the Lewis and Columbia Rivers in an historically tilled and seeded pasture (within 3 years). Due to known disturbance of soil and vegetation, the delineation of wetland boundaries is largely based on observed direct hydrology (water table/saturation) and colonization by non-seeded species. Plot does not support hydrophytic plants or feature hydrological indicators.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Bromus commutatus*	40	Y	UPL
2. *Lolium perenne*	10		FAC
3. *Agrostis capillaris*	30	Y	FAC
4. *Plantago lanceolata*	20		FACU
5. *Trifolium repens*	5		FAC
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	105		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: 17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 4/2	60	5 YR 4/4	10	C	M	SILT LOAM	
			7.5 YR 4/4	15	C	M		
			10 YR 6/2	10	D	M		
			5 YR 3/3	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: Poor horizonation; mixed matrix. Soil has been tilled within the past 3 years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table lies below depth criteria for wetland hydrology.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 6/26/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 18
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 ____	**Is the Sampled Area within a Wetland?**	**Yes X No ____**
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1. *Salix lasiandra*	50	Y	FACW
2.			
3.			
4.			
5.			
Total Cover:	50		
Herb Stratum			
1. *Phalaris arundinacea*	80	Y	FACW
2. *Agrostis capillaris*	10		FAC
3. *Lotus corniculatus*	1		FAC
4. *Persicaria amphibia*	1		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	92		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 4/2	100					SILT LOAM	
2-6	7.5 YR 4/1	80	5 YR 3/3	15	C	M	SILT LOAM	
			5 YR 3/4	5	C	PL		
6-16	5N	80	5 YR 3/3	10	C	PL	SILT LOAM	
			7.5 YR 5/1	5	C	M		
			5 YR 3/3	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- X Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 6/26/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 17
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: PEMC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes No X**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes No X		

Remarks: Plot is located in levee protected floodplain of the Lewis and Columbia Rivers in an historically tilled and seeded pasture (within 3 years). Due to known disturbance of soil and vegetation, the delineation of wetland boundaries is largely based on observed direct hydrology (water table/saturation) and colonization by non-seeded species. Plot does not support hydrophytic plants, other than seeded species, or feature hydrological indicators. Plot location does not appear to experience sufficient soil saturation to support wetland conditions, based on its elevation compared to river stage data as described in the report Methods section.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Lolium perenne*	40	Y	FAC
2. *Senecio jacobaea*	20		FACU
3. *Agrostis capillaris*	40	Y	FAC
4. *Cirsium arvense*	5		FAC
5. *Lotus corniculatus*	1		FAC
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	106		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	**0**
FACW species		x2 =	**0**
FAC species	**86**	x3 =	**258**
FACU species	**20**	x4 =	**80**
UPL species		x5 =	**0**
Column Totals:	**106** (A)		**338** (B)

Prevalence Index = B/A = **3.2**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: Vegetation does not meet Prevalence Index; plot is dominated primarily by seeded and weedy pasture grasses

SOIL

Sampling Point: 19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100					SILT LOAM	
2-8	10 YR 4/2	85	10 YR 4/4	10	C	M	SILT LOAM	
			10 YR 5/2	5	D	M		
8-10	10 YR 4/2	65	10 YR 4/4	30	C	M	SILT LOAM	
			10 YR 6/1	5	D	M		
10-16	10 YR 5/1	90	7.5 YR 4/4	10	C	M	SILT LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: Poor horizonation; mixed matrix. Soil has been tilled within the past 3 years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table lies below depth criteria for wetland hydrology.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 6/26/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 20
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks: Secondary hydrology indicators applied; fieldwork occuring when soil saturation would not typically be observable.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	5		FACW
2. *Agrostis capillaris*	30	Y	FAC
3. *Lotus corniculatus*	5		FAC
4. *Juncus effusus*	40	Y	FACW
5. *Festuca arundinacea*	10		FAC
6. *Lolium perenne*	5		FAC
7. *Trifolium repens*	5		FAC
8. *Rumex crispus*	0.1		FAC
9.			
10.			
11.			
Total Cover:	100.1		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 20

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 5/2	100					SILT LOAM	
2-6	10 YR 5/1	85	7.5 YR 4/4	10	C	M	SILT LOAM	
			10 YR 6/1	5	D	M		
6-9	10 YR 5/2	90	5 YR 4/4	5	C	M	SILT LOAM	
			10 YR 6/1	5	D	M		
9-12	3/N	98	5 YR 3/4	2	C	M	SILT LOAM	
12-16	4/N	95	5 YR 4/3	5	C	M	SILT LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 6/26/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 21
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: PEMC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes No X**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes No X		

Remarks: Plot is located in levee protected floodplain of the Lewis and Columbia Rivers in an historically tilled and seeded pasture (within 3 years). Due to known disturbance of soil and vegetation, the delineation of wetland boundaries is largely based on observed direct hydrology (water table/saturation) and colonization by non-seeded species. Plot does not support hydrophytic plants other than seeded species, or feature hydrological indicators. Plot is at an elevation that appears to not experience soil saturation sufficient to support wetland conditions when compared to river stage data as described in the report Methods sections.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Lolium perenne*	30	Y	FAC
2. *Bromus commutatus*	50	Y	UPL
3. *Agrostis stolonifera*	25	Y	FAC
4. *Plantago lanceolata*	8		FACU
5. *Hypochaeris radicata*	1		FACU
6. *Geranium dissectum*	1		UPL
7.			
8.			
9.			
10.			
11.			
Total Cover:	115		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 21

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 4/2	100					SILT LOAM	
2-6	10 YR 5/1	90	10 YR 4/4	10	C	M	SILT LOAM	
6-16	10 YR 5/2	85	5 YR 3/4	10	C	PL	SILT LOAM	CONTAINS NO LIVE ROOTS
			10 YR 6/1	5	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: Poor horizonation; mixed matrix. Soil has been tilled within the past 3 years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table lies below depth criteria for wetland hydrology.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 6/26/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 22
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 ____	**Is the Sampled Area within a Wetland?**	**Yes X No ____**
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____		

Remarks: Sampling occuring when soil saturation wouldn't typically be observable. Hydrology based on secondary indicators

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Holcus lanatus*	10		FAC
2. *Agrostis capillaris*	30	Y	FAC
3. *Persicaria amphibia*	5		OBL
4. *Juncus effusus*	10		FACW
5. *Festuca arundinacea*	5		FAC
6. *Lolium perenne*	50	Y	FAC
7. *Trifolium repens*	5		FAC
8. *Agrostis stolonifera*	20		FAC
9.			
10.			
11.			
Total Cover:	135		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		
% Bare Ground in Herb Stratum	0	% Cover of Biotic Crust	0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 22

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 4/2	100					SILT LOAM	
2-5	10 YR 4/2	90	10 YR 4/4	10	C	M	SILT LOAM	
5-9	10 YR 5/2	80	5YR 4/3	20	C	M	SILT LOAM	
9-12	4/N	95	5 YR 4/4	5	C	M	SCL	
12-16	10 YR 6/1	80	7.5 YR 3/4	20	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 6/26/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 23
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: PEMC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes	No X	

Remarks: Plot is located in levee protected floodplain of the Lewis and Columbia Rivers in an historically tilled and seeded pasture (within 3 years). Due to known disturbance of soil and vegetation and dynamic nature of large river systems, the delineation of wetland boundaries is largely based on hydrological indicators. Plot does not support hydrophytic plants or feature hydrological indicators.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Senecio jacobaea*	10		FACU
2. *Trifolium repens*	10		FAC
3. *Agrostis capillaris*	40	Y	FAC
4. *Plantago lanceolata*	20	Y	FACU
5. *Trifolium pratense*	20	Y	FACU
6. *Holcus lanatus*	30	Y	FAC
7. *Festuca arundinacea*	5		FAC
8. *Equisetum arvense*	1		FAC
9. *Anthoxanthum odoratum*	10		FACU
10.			
11.			
Total Cover:	146		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species		x1 = **0**
FACW species		x2 = **0**
FAC species	**86**	x3 = **258**
FACU species	**60**	x4 = **240**
UPL species		x5 = **0**
Column Totals:	**146** (A)	**498** (B)

Prevalence Index = B/A = **3.4**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:

SOIL

Sampling Point: 23

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 5/2	85	5 YR 4/4	10	C	M	SANDY LOAM	
			10 YR 5/1	5	D	M		
8-16	7.5 YR 5/2	80	5 YR 4/3	10	C	M	SANDY LOAM	
			10 YR 4/4	5	C	M		
			10 YR 5/1	5	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: Poor horizonation; mixed matrix. Soil has been tilled within the past 3 years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table lies below depth criteria for wetland hydrology.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 6/26/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 24
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Holcus lanatus*	60	Y	FAC
2. *Agrostis capillaris*	20		FAC
3. *Persicaria amphibia*	0.01		OBL
4. *Equisetum arvense*	0.01		FAC
5. *Festuca arundinacea*	5		FAC
6. *Lotus corniculatus*	30	Y	FAC
7. *Alopecurus pratensis*	5		FAC
8.			
9.			
10.			
11.			
Total Cover:	120.02		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 24

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 5/2	30	5 YR 4/4	10	C	M	SANDY LOAM	50% COBBLE
			7.5 YR 3/3	5	C	M		
			10 YR 5/1	5	D	M		
6-16	7.5 YR 5/2	85	5 YR 4/3	10	PL	M	SANDY LOAM	
			7.5 YR 4/4	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 7/3/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 25
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Washougal loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 ____	**Is the Sampled Area within a Wetland?**	**Yes X No ____**
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____		

Remarks: Sampling occurred when soil saturation wouldn't typically be observable; hydrology based on secondary indicators

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	100	Y	FACW
2. *Lotus corniculatus*	5		FAC
3. *Cirsium arvense*	2		FAC
4. *Galium aparine*	5		FACU
5. *Rubus armeniacus*	5		FACU
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	117		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					SILT LOAM	
4-7	10 YR 4/2	85	10 YR 4/4	5	C	M	SILT LOAM	
			5 YR 3/4	5	C	M		
			10 YR 5/1	5	D	M		
7-16	10 YR 4/2	90	10 YR 4/4	5	C	M	SILT LOAM	
			10 YR 5/1	5	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 7/3/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 26
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Washougal loam NWI Classification: PEMC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes No X**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes No X		

Remarks: Plot is located in levee protected floodplain of the Lewis and Columbia Rivers in an historically tilled and seeded pasture (within 3 years). Due to likely relic hydric soils, and the presence of plant communities that meet wetland indicator, but do include several species that are primarily upland (note 3.7 Prevelance index score),the delineation of wetland boundaries is largely based on hydrological indicators. Plot does not support hydrophytic plants or feature hydrological indicators. Plot appears to lack wetland hydrologic conditions based on its elevation compared to river stage data, as described in the report Methods section.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	10	Y	FACW
2. *Quercus garryana*	50	Y	FACU
3. *Pseudotsuga menziesii*	5		FACU
4.			
Total Cover:	65		
Shrub Stratum			
1. *Rubus armeniacus*	80	Y	FACU
2. *Acer circinatum*	20	Y	FAC
3.			
4.			
5.			
Total Cover:	100		
Herb Stratum			
1. *Lotus corniculatus*	10	Y	FAC
2. *Galium aparine*	15	Y	FACU
3. *Cirsium arvense*	10	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	35		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust 0		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)
Total Number of Dominant Species Across All Strata: **7** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **57%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	**0**
FACW species	**10**	x2 =	**20**
FAC species	**40**	x3 =	**120**
FACU species	**150**	x4 =	**600**
UPL species		x5 =	**0**
Column Totals:	**200** (A)		**740** (B)

Prevalence Index = B/A = **3.7**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks: Vegetation does not meet Prevalence Index

SOIL

Sampling Point: 26

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/2	100					SILT LOAM	
6-10	10 YR 4/2	90	10 YR 4/4	5	C	M	SILT LOAM	
			10 YR 5/1	5	D	M		
10-16	10 YR 4/2	95	10 YR 4/4	5	C	M	SILT LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
X Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Muck Mineral (S1)
___ Sandy gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:
Depth (inches):

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ Stunted or Stressed Plants (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table lies below depth criteria for wetland hydrology.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 7/3/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 27
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1. *Salix lasiandra*	30	Y	FACW
2.			
3.			
4.			
5.			
Total Cover:	30		
Herb Stratum			
1. *Phalaris arundinacea*	100	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 27

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	4/N	85	7.5 YR 3/4	10	C	M	SCL	
			7.5 YR 3/4	5	C	PL		
6-16	4/N	60	5 YR 3/4	30	C	M	SCL	
			5 YR 3/4	10	C	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- X Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water table Present?	Yes	X	No	___	Depth (inches): 5
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 7/3/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 28
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	15		FACW
2. *Eleocharis palustris*	25	Y	OBL
3. *Alopecurus pratensis*	30	Y	FAC
4. *Lysimachia nummularia*	30	Y	FACW
5. *Persicaria hydropiperoides*	5		OBL
6. *Galium trifidum*	5		FACW
7.			
8.			
9.			
10.			
11.			
Total Cover:	110		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 28

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	4/N	80	5 YR 4/3	10	C	M	SILT LOAM	
			5 YR 3/4	5	C	M		
			5 YR 3/4	5	C	PL		
5-16	5/N	70	5 YR 3/4	20	C	M	SILT LOAM	
			5 YR 4/3	5	C	M		
			5 YR 4/3	5	C	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- X Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 7/3/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 29
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Holcus lanatus*	30	Y	FAC
2. *Juncus effusus*	20		FACW
3. *Agrostis capillaris*	50	Y	FAC
4. *Lysimachia nummularia*	10		FACW
5. *Persicaria hydropiperoides*	10		OBL
6. *Lotus corniculatus*	2		FAC
7. *Rumex crispus*	0.1		FAC
8.			
9.			
10.			
11.			
Total Cover:	122.1		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 29

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100					SILT LOAM	
2-7	7.5 YR 5/2	80	5 YR 3/4	10	C	M	SILT LOAM	
			5 YR 4/4	5	C	PL		
			5 YR 4/4	5	C	M		
7-16	7.5 YR 5/2	70	5 YR 3/4	20	C	M	SILT LOAM	
			5 YR 4/4	10	C	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 7/3/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 30
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	30	Y	FACW
2. *Juncus effusus*	30	Y	FACW
3. *Agrostis capillaris*	15		FAC
4. *Holcus lanatus*	5		FAC
5. *Persicaria hydropiperoides*	1		OBL
6. *Lotus corniculatus*	15		FAC
7. *Alopecurs pratensis*	15		
8.			
9.			
10.			
11.			
Total Cover:	111		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 30

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	100					SILT LOAM	
3-7	7.5 YR 5/1	80	5 YR 3/4	10	C	PL	SILT LOAM	
			5 YR 4/4	5	C	M		
7-16	7.5 YR 5/1	75	5 YR 4/4	5	C	M	SILT LOAM	
			5 YR 3/4	5	C	PL		
			5 YR 3/3	5	C	M		
			5 YR 3/4	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 7/3/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 31
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Equisetum arvense*	0.1		FAC
2. *Trifolium repens*	10		FAC
3. *Agrostis capillaris*	80	Y	FAC
4. *Lolium perenne*	5		FAC
5. *Persicaria hydropiperoides*	10		OBL
6. *Lotus corniculatus*	10		FAC
7. *Alopecurus pratensis*	5		FAC
8. *Holcus lanatus*	5		FAC
9. *Plantago lanceolata*	0.1		FACU
10.			
11.			
Total Cover:	125.2		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 31

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100					SANDY LOAM	
2-7	7.5 YR 4/1	80	5 YR 3/4	10	C	M	SANDY LOAM	
			5 YR 4/4	5	C	PL		
			7.5 YR 6/1	5	D	M		
7-8	7.5 YR 3/1	85	5 YR 3/3	10	C	M	SANDY LOAM	
			5 YR 4/4	5	C	M		
8-16	7.5 YR 5/2	70	6/N	5	D	M	SANDY LOAM	
			5 YR 4/6	15	C	M		
			5 YR 4/4	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 8/6/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 32
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silt loam, sandy substratum NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Equisetum arvense*	0.1		FAC
2. *Trifolium repens*	25	Y	FAC
3. *Agrostis capillaris*	50	Y	FAC
4. *Lolium perenne*	20		FAC
5. *Persicaria amphibia*	10		OBL
6. *Lotus corniculatus*	0.1		FAC
7. *Juncus effusus*	5		FACW
8. *Holcus lanatus*	10		FAC
9. *Plantago lanceolata*	0.1		FACU
10.			
11.			
Total Cover:	120.3		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 32

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100					SILT LOAM	
2-8	10 YR 4/2	75	10 YR 4/4	15	C	M	SILT LOAM	
			10 YR 4/4	5	C	PL		
			5 YR 4/3	5	C	PL		
8-16	10 YR 4/2	83	5 YR 4/4	10	C	M	SILT LOAM	
			5 YR 4/4	5	C	PL		
			10 YR 6/1	2	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 8/6/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 33
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: PFOC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Equisetum arvense*	0.1		FAC
2. *Phalaris arundinacea*	45	Y	FACW
3. *Agrostis capillaris*	40	Y	FAC
4. *Persicaria amphibia*	5		OBL
5. *Holcus lanatus*	15		FAC
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	105.1		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 33

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100					SANDY LOAM	
2-7	10 YR 4/2	85	5 YR 4/4	10	C	M	SANDY LOAM	
			10 YR 6/1	5	D	M		
7-16	10 YR 4/2	75	10 YR 6/1	10	D	M	SANDY LOAM	
			5 YR 4/4	5	C	M		
			10 YR 4/4	5	C	M		
			7.5 YR 4/4	5	C	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No	X	Depth (inches):	___
Water table Present?	Yes ___	No	X	Depth (inches):	___
Saturation Present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 8/6/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 34
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Alopecurus pratensis*	15		FAC
2. *Phalaris arundinacea*	40	Y	FACW
3. *Agrostis capillaris*	50	Y	FAC
4. *Persicaria hydropiperoides*	0.1		OBL
5. *Juncus effusus*	5		FACW
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	110.1		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 34

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100					SILT LOAM	
2-7	10 YR 4/1	88	5 YR 4/4	5	C	M	SILT LOAM	
			7.5 YR 5/1	5	D	M		
			5 YR 4/4	2	C	PL		
7-16	7.5 YR 5/1	75	5 YR 3/4	18	C	M	SILT LOAM	
			10 YR 4/4	5	C	M		
			5 YR 3/4	2	C	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 8/6/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 35
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 ____	**Is the Sampled Area within a Wetland?**	**Yes X No ____**
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Plantago lanceolata*	0.1		FACU
2. *Phalaris arundinacea*	50	Y	FACW
3. *Agrostis capillaris*	50	Y	FAC
4. *Persicaria hydropiperoides*	10		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	110.1		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 35

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 4/2	100					SILT LOAM	
2-5	10 YR 4/2	75	7.5 YR 4/6	5	C	M	SILT LOAM	
			10 YR 6/1	10	D	M		
			10 YR 4/6	5	C	M		
			5 YR 4/1	5	D	M		
5-8	10 YR 5/1	75	5 YR 4/4	10	C	M	SILT LOAM	
			7.5 YR 4/6	5	C	M		
			5 YR 6/1	5	D	M		
			5 YR 4/1	5	D	M		
8-16	10 YR 5/1	80	5 YR 3/4	10	C	PL	SILT LOAM	
			5 YR 6/1	5	D	M		
			5 YR 3/3	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes X** **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 8/6/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 36
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: PFOC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Holcus lanatus*	80	Y	FAC
2. *Lotus corniculatus*	0.1		FAC
3. *Agrostis capillaris*	10		FAC
4. *Persicaria hydropiperoides*	0.1		OBL
5. *Trifolium pratense*	5		FACU
6. *Trifolium repens*	10		FAC
7.			
8.			
9.			
10.			
11.			
Total Cover:	105.2		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
_____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
_____ 4 - Morphological Adaptation1 (Provide supporting
_____ data in Remarks or on a separate sheet)
_____ 5 - Wetland Non-Vascular Plants[1]
_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks:

SOIL

Sampling Point: 36

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10 YR 3/2	100					SANDY LOAM	
1-4	10 YR 5/1	90	10 YR 4/4	10	C	M	LOAMY SAND	
4-8	10 YR 5/1	85	10 YR 4/4	5	C	M	SANDY LOAM	
			10 YR 4/4	5	C	PL		
			5 YR 4/4	5	C	PL		
8-16	10 YR 5/1	65	5 YR 3/4	25	C	M	SANDY LOAM	
			5 YR 3/4	5	C	PL		
			10 YR 6/1	5	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 8/6/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 37
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S1, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: PFOC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	100	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
_____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
_____ 4 - Morphological Adaptation1 (Provide supporting
_____ data in Remarks or on a separate sheet)
_____ 5 - Wetland Non-Vascular Plants[1]
_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks:

SOIL

Sampling Point: 37

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10 YR 3/2	100					SANDY LOAM	
1-8	10 YR 4/1	90	10 YR 4/6	10	C	M	SAND	
8-16	7.5 YR 4/1	60	7.5 YR 4/4	30	C	M	FINE SANDY L	
			5 YR 3/4	5	C	M		
			5 YR 3/4	5	C	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No	X	Depth (inches):	___
Water table Present?	Yes ___	No	X	Depth (inches):	___
Saturation Present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 8/6/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 38
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: Olympia very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks: .

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Pseudotsuga menziesii*	20	Y	FACU
2. *Quercus garryana*	20	Y	FACU
3.			
4.			
Total Cover:	40		
Shrub Stratum			
1. *Symphoricarpos albus*	30	Y	FACU
2. *Oemleria cerasiformis*	10	Y	FACU
3. *Corylus cornuta*	10	Y	FACU
4.			
5.			
Total Cover:	50		
Herb Stratum			
1. *Alopecurus pratensis*	30	Y	FAC
2. *Polystichum munitum*	2		FACU
3. *Rubus ursinus*	20	Y	FACU
4. *Phalaris arundinacea*	10		FACW
5. *Poa trivialis*	20	Y	FAC
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	82		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **8** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **25%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 23

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Muck Mineral (S1)
___ Sandy gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal-cobbles
Depth (inches): 4

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ Stunted or Stressed Plants (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table lies below depth criteria for wetland hydrology.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm- Lancaster Lake Stud Area City/County: Clark County Sampling Date: 8/6/2014
Applicant/Owner: Plas Newydd Farm, LLC State: WA Sampling Point: 39
Investigator(s): B. Haddaway, T.Stout Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.850967° Long: 122.774606° Datum: WGS 84
Soil Map Unit Name: water NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	80	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	80		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 39

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 4/2	85	10 YR 4/4	10	C	M	SILT LOAM	
3-7	3/N	100					SILT LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Gee Creek – South Backwater Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 8/31/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 1
Investigator(s): T. Stout, B. Haddaway Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 5-6%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.840454° Long: 122.754285° Datum: WGS 84
Soil Map Unit Name: water NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	20	Y	FACW
2.			
3.			
4.			
Total Cover:	20		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	80	Y	FACW
2. *Persicaria lapathifolia*	20	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 3/2	90	7.5 YR 4/6	10	C	PL	SCL	
5-10	10 YR 3/2	87	7.5 YR 4/6	10	C	PL	SCL	
			7.5 YR 5/6	3	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: SHOVEL REFUSAL - ROCK
Depth (inches): 10

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water table Present?	Yes X	No ___	Depth (inches): 5		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 4	**Wetland Hydrology Present?**	**Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 8/31/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 2
Investigator(s): T. Stout, B. Haddaway Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 3-5%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.840454° Long: 122.754285° Datum: WGS 84
Soil Map Unit Name: Olympic very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Quercus garryana*	65	Y	FACU
2. *Fraxinus latifolia*	10		FACW
3.			
4.			
Total Cover:	75		
Shrub Stratum			
1. *Rubus armeniacus*	40	Y	FACU
2. *Crataegus douglasii*	5		FAC
3. *Symphoricarpos albus*	30	Y	FACU
4.			
5.			
Total Cover:	75		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	0		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x1 = **0**
FACW species ____	x2 = **0**
FAC species ____	x3 = **0**
FACU species ____	x4 = **0**
UPL species ____	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1		100					Basalt rock	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Muck Mineral (S1)
___ Sandy gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: SHOVEL REFUSAL - ROCK
Depth (inches): 1

Hydric Soil Present? **Yes** ___ **No** X

Remarks: Plot located on basalt outcrop; soil pit not possible.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ Stunted or Stressed Plants (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 8/31/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 3
Investigator(s): T. Stout, B. Haddaway Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 5-6%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.840454° Long: 122.754285° Datum: WGS 84
Soil Map Unit Name: water NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1. *Salix lasiandra*	45	Y	FACW
2.			
3.			
4.			
5.			
Total Cover:	45		
Herb Stratum			
1. *Phalaris arundinacea*	55	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	55		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 4/2	100					SL	
2-4	10 YR 4/2	80	4/5 BG	20	C	M	SCL	
4-7	4/5 BG	60	5 YR 4/3	40	C	M	SCL	
7-16	4/5 BG	85	5 YR 4/3	15	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- X Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes X No ___ Depth (inches): 5

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 8/31/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 4
Investigator(s): T. Stout, B. Haddaway Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 3-5%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.840454° Long: 122.754285° Datum: WGS 84
Soil Map Unit Name: Olympic very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1. *Rubus armeniacus*	60	Y	FACU
2.			
3.			
4.			
5.			
Total Cover:	60		
Herb Stratum			
1. *Anthoxanthum odoratum*	20	Y	FACU
2. *Bromus tectorum*	40	Y	NOL
3. *Danthonia californica*	10		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	70		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: SHOVEL REFUSAL - ROCK
Depth (inches): 0

Hydric Soil Present? **Yes** ___ **No** X

Remarks: Plot located on basalt outcrop; soil pit not possible.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 11/12/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 5
Investigator(s): T. Stout, K. Biafora Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 3-5%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.840454° Long: 122.754285° Datum: WGS 84
Soil Map Unit Name: Olympic very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	35	Y	FACW
2.			
3.			
4.			
Total Cover:	35		
Shrub Stratum			
1. *Symphoricarpos albus*	10	Y	FACU
2.			
3.			
4.			
5.			
Total Cover:	10		
Herb Stratum			
1. *Phalaris arundinacea*	40	Y	FACW
2. *Carex obnupta*	30	Y	OBL
3. *Galium aparine*	2		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	72		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 2/2	98	10 YR 3/3	2	C	PL	SCL	ALONG LIVING ROOTS
3-9	10 YR 3/2	88	7.5 YR 4/6	7	C	M	SCL	
			7.5 YR 4/4	5	C	M		
9-16	10 YR 5/2	85	10 YR 2/1	7	C	M	SCL	ORGANIC MATTER COATING PEDS
			7.5 YR 4/6	5	C	M		
			7.5 YR 5/6	3	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 11/12/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 6
Investigator(s): T. Stout, K. Biafora Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 3-5%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.840454° Long: 122.754285° Datum: WGS 84
Soil Map Unit Name: Olympic very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	25	Y	FACW
2. *Quercus garryana*	25	Y	FACU
3. *Pseudotsuga menziesii*	25	Y	FACU
4.			
Total Cover:	75		
Shrub Stratum			
1. *Symphoricarpos albus*	40	Y	FACU
2. *Rubus ursinus*	15	Y	FACU
3.			
4.			
5.			
Total Cover:	55		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	0		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **20%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 2/1	100					SILT LOAM	
5-16	10 YR 2/1	85	10 YR 4/1	15	D	M	SILT LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Muck Mineral (S1)
___ Sandy gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: SHOVEL REFUSAL - ROCK
Depth (inches): 10

Hydric Soil Present? **Yes** ____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ Stunted or Stressed Plants (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____
Water table Present? Yes ____ No X Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 11/12/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 7
Investigator(s): T. Stout, K. Biafora Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 2-3%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.840454° Long: 122.754285° Datum: WGS 84
Soil Map Unit Name: Olympic very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	35	Y	FACW
2.			
3.			
4.			
Total Cover:	35		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	100	Y	FACW
2. *Rubus armeniacus*	1		FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	101		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5 YR 2.5/2	100					SCL	
5-12	7.5 YR 3/2	80	5 YR 3/4	10	C	M	SCL	
			5 YR 4/6	10	C	M		
12-16	5 YR 4/2	80	5 YR 3/4	10	C	M	SCL	
			5 YR 4/6	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water table Present?	Yes X	No ___	Depth (inches): 12		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 10	**Wetland Hydrology Present?**	**Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 11/12/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 8
Investigator(s): T. Stout, K. Biafora Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 3-5%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.840454° Long: 122.754285° Datum: WGS 84
Soil Map Unit Name: Olympic very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	40	Y	FACW
2. *Quercus garryana*	10		FACU
3. *Pseudotsuga menziesii*	10		FACU
4. *Acer macrophyllum*	10		FACU
Total Cover:	70		
Shrub Stratum			
1. *Symphoricarpos albus*	10		FACU
2. *Rubus armeniacus*	60	Y	FACU
3.			
4.			
5.			
Total Cover:	70		
Herb Stratum			
1. *Galium aparine*	2	Y	FACU
2. *Urtica dioica*	2	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	4		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5 YR 3/2	100					CLAY LOAM	
6-12	5 YR 3/3	100					CLAY LOAM	
12-16	5 YR 3/3	50	5 YR 3/4	50	C	M	CLAY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 11/18/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 9
Investigator(s): T. Stout, K. Biafora Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 2-3%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.840454° Long: 122.754285° Datum: WGS 84
Soil Map Unit Name: Olympic very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	30	Y	FACW
2.			
3.			
4.			
Total Cover:	30		
Shrub Stratum			
1. *Salix lasiandra*	5	Y	FACW
2. *Crataegus douglasii*	5	Y	FAC
3.			
4.			
5.			
Total Cover:	10		
Herb Stratum			
1. *Phalaris arundinacea*	60	Y	FACW
2. *Lysimachia nummularia*	5		FACW
3. *Carex obnupta*	35	Y	OBL
4. *Rumex crispus*	1		FAC
5. *Galium trifidum*	1		FACW
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	102		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **5** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 4/2	95	7.5 YR 4/6	3	C	M	SILT LOAM	
			10 YR 5/2	2	D	M		
5-11	10 YR 5/2	60	5 YR 5/8	7	C	M	SCL	
			10 YR 4/4	3	C	M		
			10 YR 2/1	30	C	M		ORGANIC MATTER COATING PEDS
11-16	10 YR 6/2	70	7.5 YR 5/8	30	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 11/18/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 10
Investigator(s): T. Stout, K. Biafora Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 3-5%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.840454° Long: 122.754285° Datum: WGS 84
Soil Map Unit Name: Olympic very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1. *Symphoricarpos albus*	80	Y	FACU
2. *Rubus armeniacus*	45	Y	FACU
3. *Spiraea douglasii*	5		FACW
4.			
5.			
Total Cover:	130		
Herb Stratum			
1. *Hypericum perforatum*	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	5		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/3	100					SCL	
6-12	10 YR 3/3	94	10 YR 3/4	5	C	M	SCL	
			7.5 YR 4/6	1	C	M		
12-16	10 YR 4/2	93	10 YR 5/8	7	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 11/18/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 11
Investigator(s): T. Stout, K. Biafora Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 2-3%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.840454° Long: 122.754285° Datum: WGS 84
Soil Map Unit Name: Olympic very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	15	Y	FACW
2.			
3.			
4.			
Total Cover:	15		
Shrub Stratum			
1. *Rosa nutkana*	5	Y	FAC
2.			
3.			
4.			
5.			
Total Cover:	5		
Herb Stratum			
1. *Phalaris arundinacea*	90	Y	FACW
2. *Geranium molle*	2		NOL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	92		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 = **0**
FACW species	x2 = **0**
FAC species	x3 = **0**
FACU species	x4 = **0**
UPL species	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ##### 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10 YR 4/2	50	7.5 YR 3/4	15	C	M	SILT LOAM	
			5 YR 3/3	5	C	M		
			10 YR 5/2	10	D	M		
			7.5 YR 4/6	20	C	M		
9-12	GLEY 1 3/N	70	10 YR 5/6	10	C	M	SILT LOAM	
			10 YR 4/2	20	D	M		
12-16	10 YR 4/2	85	10 YR 4/6	10	C	M	SCL	
			7.5 YR 4/4	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water table Present?	Yes X	No ___	Depth (inches): 15		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 12	**Wetland Hydrology Present?**	**Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 11/18/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 12
Investigator(s): T. Stout, K. Biafora Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 3-5%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.840454° Long: 122.754285° Datum: WGS 84
Soil Map Unit Name: Olympic very stony clay loam NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Quercus garryana*	40	Y	FACU
2.			
3.			
4.			
Total Cover:	40		
Shrub Stratum			
1. *Amelanchier alnifolia*	10	Y	FACU
2. *Symphoricarpos albus*	20	Y	FACU
3.			
4.			
5.			
Total Cover:	30		
Herb Stratum			
1. *Hypericum perforatum*	2		FACU
2. *Daucus carota*	20	Y	FACU
3. *Holcus lanatus*	10		FAC
4. *Elymus glaucus*	5		FACU
5. *Agrostis stolonifera*	50	Y	FAC
6. *Bromus diandrus*	5		NOL
7. *Stellaria media*	3		FACU
8. *Geranium dissectum*	10		NOL
9. *Geranium molle*	10		NOL
10. *Polypodium glycyrrhiza*	2		NOL
11.			
Total Cover:	117		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **20%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 3/2	100					SCL	
5-8	10 YR 4/2	90	10 YR 4/6	10	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: SHOVEL REFUSAL-ROCK
Depth (inches): 8

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 11/18/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 13
Investigator(s): T. Stout, K. Biafora Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 2-3%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.840454° Long: 122.754285° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: PFO1R
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X 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	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Fraxinus latifolia*	75	Y	FACW
2.			
3.			
4.			
Total Cover:	75		
Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum			
1. *Phalaris arundinacea*	95	Y	FACW
2. *Lysimachia nummularia*	1		FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	96		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	**0**
FACW species	x2 =	**0**
FAC species	x3 =	**0**
FACU species	x4 =	**0**
UPL species	x5 =	**0**
Column Totals: **0** (A)		**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
5 - Wetland Non-Vascular Plants[1]
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

SOIL

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 4/2	95	10 YR 4/6	5	C	M	SILT LOAM	
3-9	10 YR 4/2	70	7.5 YR 4/4	15	C	M	SILT LOAM	
			7.5 YR 3/3	15	C	M		
9-16	10 YR 5/2	90	10 YR 4/4	10	C	M	SILT LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No	X	Depth (inches):	___
Water table Present?	Yes X	No	___	Depth (inches):	9
Saturation Present? (includes capillary fringe)	Yes X	No	___	Depth (inches):	7

Wetland Hydrology Present? **Yes X** **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Plas Newydd Farm City/County: Clark County Sampling Date: 11/18/2015
Applicant/Owner: Plas Newydd Farm State: WA Sampling Point: 14
Investigator(s): T. Stout, K. Biafora Section, Township, Range: S12, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 3-5%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.840454° Long: 122.754285° Datum: WGS 84
Soil Map Unit Name: Sauvie silty clay loam NWI Classification: PFO1R
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes X 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 X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
Total Cover:	0		
Shrub Stratum			
1. *Rubus armeniacus*	10	Y	FACU
2. *Symphoricarpos albus*	20	Y	FACU
3.			
4.			
5.			
Total Cover:	30		
Herb Stratum			
1. *Cynosurus echinata*	10		NOL
2. *Daucus carota*	20		FACU
3. *Holcus lanatus*	10		FAC
4. *Polypodium glycyrrhiza*	3		NOL
5. *Agrostis stolonifera*	50	Y	FAC
6. *Verbascum thapsus*	2		FACU
7. *Stellaria media*	2		FACU
8. *Geranium molle*	45	Y	NOL
9. *Prunella vulgaris*	1		FACU
10. *Galium trifidum*	1		FACW
11.			
Total Cover:	144		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **25%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x1 = **0**
FACW species ____	x2 = **0**
FAC species ____	x3 = **0**
FACU species ____	x4 = **0**
UPL species ____	x5 = **0**
Column Totals: **0** (A)	**0** (B)

Prevalence Index = B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting
____ data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No X**

Remarks:

SOIL

Sampling Point: 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 3/2	100					SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: SHOVEL REFUSAL-ROCK
Depth (inches): 5

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PFO- Mosaic Plots		Transect and Plot															Names: T Stout/B Haddaway									27-Oct-16					
Vegetation	Ind Status?	T1-P1	dominant?	T1-P2	dominant?	T1-P3	dominant?	T1-P4	dominant?	T1-P5	dominant?	T2-P1	dominant?	T2-P2	dominant?	T2-P3	dominant?	T2-P4	dominant?	T2-P5	dominant?	T3-P1	dominant?	T3-P2	dominant?	T3-P3	dominant?	T3-P4	dominant?	T3-P5	dominant?
Tree Stratum (30' radius plot)																														
Crataegus douglasii	FAC			20		10				10								2				15								
Populus balsamifera	FAC	30	Y	60	Y	40	Y	30	Y	20	Y	30	Y	25	Y	15		15		60	Y	50	Y	70	Y	30	Y	55	Y	60	Y
Thuja plicata	FAC					5						25	Y	5		35	Y	40	Y	5		15		25	Y						
Fraxinus latifolia	FACW	60	Y	15		40	Y	35	Y	55	Y	25	Y	50	Y	35	Y	20	Y	40	Y	40	Y	5		60	Y	20	Y	35	Y
Cornus nuttallii	FACU			10																										
Tree totals		**90**		**105**		**95**		**65**		**85**		**80**		**80**		**85**		**77**		**105**		**120**		**100**		**90**		**75**		**95**	
Shrub Stratum (5'radius plot)																														
Crataegus douglasii	FAC																					10								
Lonicera involucrata	FAC																					5				5		15		5	
Populus balsamifera	FAC											2		5	Y													10			
Rosa nutkana	FAC									5		2																			
Rosa pisocarpa	FAC																									10					
Thuja plicata	FAC											10	Y																		
Cornus sericea	FACW	10				5		25	Y	25	Y	2												5							
Oemleria cerasiformis	FACU																			5											
Rubus armeniacus	FACU	20	Y	35	Y	5		20	Y			15	Y	15	Y	15	Y			10	Y	3				15		80	Y	25	Y
Symphoricarpos albus	FACU	25	Y	25	Y	40	Y	5		15	Y					10	Y	15	Y	35	Y	30	Y	35	Y	65	Y			55	Y
Sambucus racemosa	FACU																					5				5					
Shrub total		**55**		**60**		**50**		**50**		**45**		**31**		**20**		**25**		**15**		**50**		**53**		**40**		**100**		**105**		**85**	
Herb Stratum (5' radius plot)																														
Agrostis capillaris	FAC	40	Y	20	Y			20	Y	5		20	Y	15	Y	2															
Geum macrophyllum	FAC			1																											
Ranunculus repens	FAC	1		2								5								1											
Urtica dioica	FAC	10		1																											
Lysimachia nummularia	FACW			1																5											
Phalaris arundinacea	FACW	5		25	Y	5		15	Y	30	Y	40	Y	40	Y	5				15	Y	25	Y	55	Y	30	Y	10	Y	35	Y
Geranium robertianum	FACU			5																											
Rubus ursinus	FACU	10		30	Y	25	Y	15	Y	25	Y	25	Y	20	Y	20	Y	10	Y	20	Y	65	Y	80	Y	70	Y			15	Y
Stellaria media	FACU	1																													
herb total		**67**		**85**		**30**		**50**		**60**		**90**		**75**		**27**		**10**		**41**		**90**		**135**		**100**		**10**		**50**	
bare ground		15				60		25		20		30		40		80		80													

	wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?	
Species That Are OBL, FACW, or FAC:	60%	Y	50%	N	50%	N	71%	Y	67%	Y	75%	Y	71%	Y	40%	N	50%	N	50%	N	60%	Y	60%	Y	60%	Y	75%	Y	50%	N
Prevalence Index	2.91	Y	3.26	N	3.11	N	2.79	Y	2.63	Y	2.87	Y	2.69	Y	3.04	N	3.05	N	3.05	N	3.14	N	3.18	N	3.22	N	3.26	N	3.11	N
Prevalence Index Worksheet:																														
Total % Cover of:																														
OBL species																														
FACW species	75	150	41	82	50	100	75	150	110	220	67	134	90	180	40	80	20	40	60	120	65	130	65	130	90	180	30	60	70	140
FAC species	81	243	104	312	55	165	50	150	40	120	94	282	50	150	52	156	57	171	66	198	95	285	95	285	45	135	80	240	65	195
FACU species	56	224	105	420	70	280	40	160	40	160	40	160	35	140	45	180	25	100	70	280	103	412	115	460	155	620	80	320	95	380
UPL species		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0
Column Totals:	212	617	250	814	175	545	165	460	190	500	201	576	175	470	137	416	102	311	196	598	263	827	275	875	290	935	190	620	230	715
Prevalence Index = B/A =		2.91		3.26		3.11		2.79		2.63		2.87		2.69		3.04		3.05		3.05		3.14		3.18		3.22		3.26		3.11

% Plots Meeting Dominance	60%
% Plots Meeting Prevalence	33%

PEM- Mosaic Plots		Transect 1 Plots							Names: T Stout/B Haddaway								27-Oct-16							
Vegetation	**Ind Status**	**T1-P1**	**dominant?**	**T1-P2**	**dominant?**	**T1-P3**	**dominant?**	**T1-P4**	**dominant?**	**T1-P5**	**dominant?**	**T1-P6**	**dominant?**	**T1-P7**	**dominant?**	**T1-P8**	**dominant?**	**T1-P9**	**dominant?**	**T1-P10**	**dominant?**	**T1-P11**	**dominant?**
Herb Stratum (5' radius plot)																							
Agrostis capillaris	FAC	20				20		15		20		25		55	Y	30	Y	40	Y	20		15	Y
Agrostis stolonifera	FAC																						
Alopecurus pratensis	FAC	60	Y	50	Y	65	Y	75	Y	50	Y	30	Y	40	Y	45	Y	50	Y	15		10	
Cirsium arvense	FAC																						
Elymus repens	FAC																	2					
Festuca arundinacea	FAC																						
Festuca rubra	FAC	5		5		5		5				5		3		5		5		2			
Holcus lanatus	FAC																						
Lotus corniculatus	FAC																						
Plantago major	FAC											2										10	
Ranunculus repens	FAC			5		2																	
Rumex crispus	FAC	1				2				1		1		1						1			
Trifolium repens	FAC	10		15		30	Y	5				10		10		15		3		60	Y	45	Y
Cirsium vulgare	FACU																					3	
Dactylis glomerata	FACU	5						5															
Hypochaeris radicata	FACU	2		3				3		2		5				5		2					
Leucanthemum vulgare	FACU																						
Plantago lanceolata	FACU																			2		5	
Taraxacum officinale	FACU																					5	
Lysimachia nummularia	FACW																						
Phalaris arundinacea	FACW	30	Y	30	Y	15		15		30	Y	50	Y	15		20		10		5		5	
Bellis perennis	NOL																					2	
Cynosurus echinatatus	NOL																						
Geranium dissectum	NOL	1		5		10		3		10		3				5		3					
herb total		**134**		**113**		**149**		**126**		**113**		**131**		**124**		**125**		**115**		**105**		**100**	
bare ground																				10		15	

			wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?
Percent of Dominant Species That																							
Are OBL, FACW, or FAC:		100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y
Prevalence Index		2.84	Y	2.85	Y	3.03	N	2.99	Y	2.93	Y	2.70	Y	2.88	Y	2.96	Y	2.98	Y	2.97	Y	3.12	N
Prevalence Index Worksheet:																							
Total % Cover of:																							
OBL species																							
FACW species		30	60	30	60	15	30	15	30	30	60	50	100	15	30	20	40	10	20	5	10	5	10
FAC species		96	288	75	225	124	372	100	300	71	213	73	219	109	327	95	285	100	300	98	294	80	240
FACU species		7	28	3	12	0	0	8	32	2	8	5	20	0	0	5	20	2	8	2	8	13	52
UPL species		1	5	5	25	10	50	3	15	10	50	3	15	0	0	5	25	3	15	0	0	2	10
Column Totals:		134	381	113	322	149	452	126	377	113	331	131	354	124	357	125	370	115	343	105	312	100	312
Prevalence Index = B/A =			2.84		2.85		3.03		2.99		2.93		2.70		2.88		2.96		2.98		2.97		3.12

Transects	T1	T2	TOTAL
% Plots Meeting Dominance	100%	100%	100%
% Plots Meeting Prevalence	77%	90%	83%

PEM- Mosaic Plots		Transect 1 Plots							Names: T Stout/B Haddaway								27-Oct-16				
Vegetation	**Ind Status**	**T1-P12**	**dominant?**	**T1-P13**	**dominant?**	**T1-P14**	**dominant?**	**T1-P15**	**dominant?**	**T1-P16**	**dominant?**	**T1-P17**	**dominant?**	**T1-P18**	**dominant?**	**T1-P19**	**dominant?**	**T1-P20**	**dominant?**	**T1-P21**	**dominant?**
Herb Stratum (5' radius plot)																					
Agrostis capillaris	FAC	20	Y	20		25	Y	60	Y	65	Y	85	Y	80	Y	75	Y	90	Y	80	Y
Agrostis stolonifera	FAC																				
Alopecurus pratensis	FAC	10		5		45	Y	40	Y	25	Y	15		20		10		5			
Cirsium arvense	FAC																				
Elymus repens	FAC																			2	
Festuca arundinacea	FAC																			10	
Festuca rubra	FAC	2		30	Y	10		3		10		5		5				10			
Holcus lanatus	FAC																			5	
Lotus corniculatus	FAC			5								1									
Plantago major	FAC	5																			
Ranunculus repens	FAC																				
Rumex crispus	FAC							1													
Trifolium repens	FAC	45	Y	40	Y			2													
Cirsium vulgare	FACU													3							
Dactylis glomerata	FACU			20																	
Hypochaeris radicata	FACU																				
Leucanthemum vulgare	FACU																				
Plantago lanceolata	FACU																				
Taraxacum officinale	FACU	1																			
Lysimachia nummularia	FACW																				
Phalaris arundinacea	FACW	2		10		45	Y	15		20		15		10		30	Y	10		10	
Bellis perennis	NOL																				
Cynosurus echinatatus	NOL																				
Geranium dissectum	NOL																				
herb total		**85**		**130**		**125**		**121**		**120**		**121**		**118**		**115**		**115**		**107**	
bare ground		20																			

		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?	
Percent of Dominant Species That																					
Are OBL, FACW, or FAC:		100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y
Prevalence Index		2.99	Y	3.08	N	2.64	Y	2.88	Y	2.83	Y	2.88	Y	2.94	Y	2.74	Y	2.91	Y	2.91	Y
Prevalence Index Worksheet:																					
Total % Cover of:																					
OBL species																					
FACW species		2	4	10	20	45	90	15	30	20	40	15	30	10	20	30	60	10	20	10	20
FAC species		82	246	100	300	80	240	106	318	100	300	106	318	105	315	85	255	105	315	97	291
FACU species		1	4	20	80	0	0	0	0	0	0	0	0	3	12	0	0	0	0	0	0
UPL species		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Column Totals:		85	254	130	400	125	330	121	348	120	340	121	348	118	347	115	315	115	335	107	311
Prevalence Index = B/A =			2.99		3.08		2.64		2.88		2.83		2.88		2.94		2.74		2.91		2.91

PEM- Mosaic Plots			Transect 1 Plots							Names: T Stout/B Haddaway								27-Oct-16			
Vegetation	**Ind Status**	**T1-P22**	**dominant?**	**T1-P23**	**dominant?**	**T1-P24**	**dominant?**	**T1-P25**	**dominant?**	**T1-P26**	**dominant?**	**T1-P27**	**dominant?**	**T1-P28**	**dominant?**	**T1-P29**	**dominant?**	**T1-P30**	**dominant?**	**T1-P31**	**dominant?**
Agrostis capillaris	FAC	90	Y	85	Y	90	Y	65	Y	90	Y	75	Y	65	Y	50	Y				
Agrostis stolonifera	FAC																	50	Y	60	Y
Alopecurus pratensis	FAC					5						5		5							
Cirsium arvense	FAC	2		2		1		2		1											
Elymus repens	FAC																				
Festuca arundinacea	FAC			15				15		5		20		5				20		20	
Festuca rubra	FAC	10		5		10		20		10		15		5				10		5	
Holcus lanatus	FAC	5																			
Lotus corniculatus	FAC			2		2		2				2		5							
Plantago major	FAC							2						5		5				5	
Ranunculus repens	FAC																				
Rumex crispus	FAC					1						2				5					
Trifolium repens	FAC							2				5		10		40	Y	25	Y	25	Y
Cirsium vulgare	FACU																				
Dactylis glomerata	FACU																				
Hypochaeris radicata	FACU																	1			
Leucanthemum vulgare	FACU																	3			
Plantago lanceolata	FACU											2									
Taraxacum officinale	FACU																				
Lysimachia nummularia	FACW															5					
Phalaris arundinacea	FACW	5		5				10		5				15							
Bellis perennis	NOL																				
Cynosurus echinatatus	NOL															5		10		10	
Geranium dissectum	NOL																				
herb total		**112**		**114**		**109**		**118**		**111**		**126**		**115**		**110**		**119**		**125**	
bare ground																					

			wetland?		**wetland?**		**wetland?**		**wetland?**		**wetland?**		**wetland?**		**wetland?**		**wetland?**		**wetland?**		**wetland?**
Percent of Dominant Species That																					
Are OBL, FACW, or FAC:		100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y
Prevalence Index		2.96	Y	2.96	Y	3.00	Y	2.92	Y	2.95	Y	3.02	N	2.87	Y	3.05	N	3.20	N	3.16	N
Prevalence Index Worksheet:																					
Total % Cover of:																					
OBL species																					
FACW species		5	10	5	10	0	0	10	20	5	10	0	0	15	30	5	10	0	0	0	0
FAC species		107	321	109	327	109	327	108	324	106	318	124	372	100	300	100	300	105	315	115	345
FACU species		0	0	0	0	0	0	0	0	0	0	2	8	0	0	0	0	4	16	0	0
UPL species		0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	25	10	50	10	50
Column Totals:		112	331	114	337	109	327	118	344	111	328	126	380	115	330	110	335	119	381	125	395
Prevalence Index = B/A =			2.96		2.96		3.00		2.92		2.95		3.02		2.87		3.05		3.20		3.16

PEM- Mosaic Plots		Transect 2 Plots										Names: T Stout/B Haddaway						27-Oct-16					
Vegetation	**Ind Status**	**T2-P1**	**dominant?**	**T2-P2**	**dominant?**	**T2-P3**	**dominant?**	**T2-P4**	**dominant?**	**T2-P5**	**dominant?**	**T2-P6**	**dominant?**	**T2-P7**	**dominant?**	**T2-P8**	**dominant?**	**T2-P9**	**dominant?**	**T2-P10**	**dominant?**	**T2-P11**	**dominant?**
Herb Stratum (5' radius plot)																							
Agrostis capillaris	FAC	70	Y	65	Y	65	Y	90	Y														
Agrostis stolonifera	FAC									50	Y	65	Y	50	Y	65	Y	45	Y	40	Y	50	Y
Alopecurus pratensis	FAC			5								5		20		30	Y	45	Y	40	Y	40	Y
Cirsium arvense	FAC			10				5				5		3		10		3		5		5	
Elymus repens	FAC																						
Festuca arundinacea	FAC	35	Y	10		30	Y	5		20													
Festuca rubra	FAC																						
Holcus lanatus	FAC							10		35	Y	25		15		10		10		5			
Lolium perenne	FAC									10													
Lotus corniculatus	FAC					5						3		2								2	
Plantago major	FAC			1		5																	
Ranunculus repens	FAC																						
Rumex crispus	FAC																					2	
Trifolium repens	FAC	5		5				5				5		5		3				20		5	
Cirsium vulgare	FACU																						
Dactylis glomerata	FACU																						
Daucus carota	FACU															3							
Hypochaeris radicata	FACU					5																	
Leucanthemum vulgare	FACU																						
Plantago lanceolata	FACU																						
Taraxacum officinale	FACU																						
Lysimachia nummularia	FACW																						
Phalaris arundinacea	FACW			15		5		3				50	Y	10				5				5	
Bellis perennis	NOL																						
Cynosurus echinatatus	NOL																						
Geranium dissectum	NOL																					3	
herb total		**110**		**111**		**115**		**118**		**115**		**158**		**105**		**121**		**108**		**110**		**112**	
bare ground																				10		15	

		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?		wetland?	
Percent of Dominant Species That																							
Are OBL, FACW, or FAC:		100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y
Prevalence Index		3.00	Y	2.86	Y	3.00	Y	2.97	Y	3.00	Y	2.68	Y	2.90	Y	3.02	N	2.95	Y	3.00	Y	3.01	N
Prevalence Index Worksheet:																							
Total % Cover of:																							
OBL species																							
FACW species		0	0	15	30	5	10	3	6	0	0	50	100	10	20	0	0	5	10	0	0	5	10
FAC species		110	330	96	288	105	315	115	345	115	345	108	324	95	285	118	354	103	309	110	330	104	312
FACU species		0	0	0	0	5	20	0	0	0	0	0	0	0	0	3	12	0	0	0	0	0	0
UPL species		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15
Column Totals:		110	330	111	318	115	345	118	351	115	345	158	424	105	305	121	366	108	319	110	330	112	337
Prevalence Index = B/A =			3.00		2.86		3.00		2.97		3.00		2.68		2.90		3.02		2.95		3.00		3.01

PEM- Mosaic Plots		Transect 2 Plots										Names: T Stout/B Haddaway						27-Oct-16			
Vegetation	**Ind Status**	**T2-P12**	**dominant?**	**T2-P13**	**dominant?**	**T2-P14**	**dominant?**	**T2-P15**	**dominant?**	**T2-P16**	**dominant?**	**T2-P17**	**dominant?**	**T2-P18**	**dominant?**	**T2-P19**	**dominant?**	**T2-P20**	**dominant?**	**T2-P21**	**dominant?**
Herb Stratum (5' radius plot)																					
Agrostis capillaris	FAC																				
Agrostis stolonifera	FAC	30	Y	30	Y	35	Y	40	Y	65	Y	60	Y	45	Y	65	Y	50	Y	65	Y
Alopecurus pratensis	FAC	65	Y	60	Y	40	Y	45	Y	40	Y	40	Y	45	Y	35	Y	25	Y	30	Y
Cirsium arvense	FAC	5		2										2							
Elymus repens	FAC																				
Festuca arundinacea	FAC									10				5		1		5		1	
Festuca rubra	FAC	5				10		5						5							
Holcus lanatus	FAC	20		15		15		20		5								10		5	
Lolium perenne	FAC											5									
Lotus corniculatus	FAC	2		2				2		1		5		1				5			
Plantago major	FAC																				
Ranunculus repens	FAC																				
Rumex crispus	FAC																				
Trifolium repens	FAC					5				5		5						10		2	
Cirsium vulgare	FACU																				
Dactylis glomerata	FACU																				
Daucus carota	FACU							2													
Hypochaeris radicata	FACU																				
Leucanthemum vulgare	FACU																				
Plantago lanceolata	FACU																				
Taraxacum officinale	FACU																				
Lysimachia nummularia	FACW			1																	
Phalaris arundinacea	FACW	5		5		10		5		10		5		5		3		10		10	
Bellis perennis	NOL																				
Cynosurus echinatatus	NOL																				
Geranium dissectum	NOL							5													
herb total		**132**		**115**		**115**		**124**		**136**		**120**		**108**		**104**		**115**		**113**	
bare ground		20																			
			wetland?		**wetland?**		**wetland?**		**wetland?**		**wetland?**		**wetland?**		**wetland?**		**wetland?**		**wetland?**		**wetland?**
Percent of Dominant Species That Are OBL, FACW, or FAC:		100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y	100%	Y
Prevalence Index		2.96	Y	2.95	Y	2.91	Y	3.06	N	2.93	Y	2.96	Y	2.95	Y	2.97	Y	2.91	Y	2.91	Y
Prevalence Index Worksheet:																					
Total % Cover of:																					
OBL species																					
FACW species		5	10	6	12	10	20	5	10	10	20	5	10	5	10	3	6	10	20	10	20
FAC species		127	381	109	327	105	315	112	336	126	378	115	345	103	309	101	303	105	315	103	309
FACU species		0	0	0	0	0	0	2	8	0	0	0	0	0	0	0	0	0	0	0	0
UPL species		0	0	0	0	0	0	5	25	0	0	0	0	0	0	0	0	0	0	0	0
Column Totals:		132	391	115	339	115	335	124	379	136	398	120	355	108	319	104	309	115	335	113	329
Prevalence Index = B/A =			2.96		2.95		2.91		3.06		2.93		2.96		2.95		2.97		2.91		2.91

Appendix B: Ecology Rating System Data Forms

Wetland name or number WL-1a

RATING SUMMARY – Western Washington

Name of wetland (or ID #): 1a Date of site visit: May 2014

Rated by B. Haddaway Trained by Ecology? Yes_X_No___ Date of training 2004 committee

HGM Class Used for Rating Riverine Unit has multiple HGM classes?__Y X N

NOTE: **Form is not complete without the figures requested.** *(figures can be combined)*
Source of base aerial photo/map 2013 NAIP, USDA

OVERALL WETLAND CATEGORY I (based on functions X or special characteristics_X_)

1. Category of wetland based on FUNCTIONS

X **Category I** - Total score = 23 – 27

_____ **Category II** - Total score = 20 - 22

_____ **Category III** - Total score = 16 - 19

_____ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M L	H M L	H M L	
Landscape Potential	H M L	H M L	H M L	
Value	H M L	H M L	H M L	TOTAL
Score Based on Ratings	9	6	9	24

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland with high conservation value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Wetland name or number WL-1a

Maps and figures required to answer questions correctly (Western Washington).

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D1.4	
Boundary of 150 ft buffer *(can be added to another figure)*	D 2.2, D 5.2	
Polygon of area 1km from wetland edge - Including polygons for accessible habitat and undisturbed habitat	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	D 3.1, D 3.2	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1-1
Hydroperiods	H 1.2	1-1
Ponded depressions	R 1.1	1-1
Boundary of 150 ft buffer *(can be added to another figure)*	R 2.4	1-1
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	1-1
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	1-2
Polygon of area 1km from wetland edge -Including polygons for accessible habitat and undisturbed habitat	H 2.1, H2.2	1-2
Screen capture of map of 303d listed waters in basin (from Ecology web site)	R 3.1	4
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	R 3.2, R 3.3	4

Lake-fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of 150 ft buffer *(can be added to another figure)*	L 2.2	
Polygon of area 1km from wetland edge (Including polygons for accessible habitat and undisturbed habitat)	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	L 3.1	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
Polygon of area 1km from wetland edge (Including polygons for accessible habitat and undisturbed habitat)	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	S 3.1, S 3.2	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

For questions 1-7 the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

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 an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 **YES** – The wetland class is **Flats**

*If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 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**?

NO - go to 5 **YES –** The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

_X_ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

_X_ The overbank flooding occurs at least once every two years.

NO - go to 6 **YES** – The wetland class is **Riverine**

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

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 classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes Within the Wetland Unit Being Rated	HGM Class to Use in Rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake-fringe	Depressional
Riverine + Lake-fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

.

Wetland name or number _____

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that site functions to improve water quality

R 1. Does the wetland unit have the potential to improve water quality?	
R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >3/4 area of wetland points = 8 Depressions cover > 1/2 area of wetland points = 4 Depressions present but cover < 1/2 area of wetland points = 2 No depressions present points = 0	4
R 1.2 Structure of plants in the unit (areas with >90% cover at person height, **not** Cowardin classes) Trees or shrubs > 2/3 area of the unit points = 8 Trees or shrubs > 1/3 area of the unit points = 6 Herbaceous plants (> 6" high) > 2/3 area of unit points = 6 Herbaceous plants (> 6" high) > 1/3 area of unit points = 3 Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit points = 0	8
Total for R 1 Add the points in the boxes above	12

Rating of Site Potential If score is: **12 – 16 = H** **6 - 11 = M** **0 - 5 = L** *Record the rating on the first page*

R 2.0 Does the landscape have the potential to support the water quality function at the site?	
R 2.1 Is the unit within an incorporated city or within its UGA? Yes = 2 No = 0	0
R. 2.2 Does the contributing basin include a UGA or incorporated area? Yes = 1 No = 0	1
R 2.3 Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years? Yes = 1 No = 0	1
R 2.4 Is > 10% of the buffer within 150 ft of wetland unit in land uses that generate pollutants Yes = 1 No = 0	1
R 2.5 Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1 – R 2.4 Other sources _____ Yes = 1 No = 0	0
Total for R 2 Add the points in the boxes above	3

Rating of Landscape Potential If score is: **3 - 6 = H** **1 or 2 = M** **0 = L** *Record the rating on the first page*

R 3.0 Is the water quality improvement provided by the site valuable to society?	
R 3.1 Is the unit along a stream or river that is on the 303(d) list or on a tributary that drains to one within one mile? Yes = 1 No = 0	1
R 3.2 Does the river or stream have TMDL limits for nutrients, toxics, or pathogens anywhere downstream? Yes = 1 No = 0	1
R 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which unit is found*) Yes = 2 No = 0	2
Total for R 3 Add the points in the boxes above	4

Rating of Value If score is: **2 - 4 = H** **1 = M** **0 = L** *Record the rating on the first page*

Wetland name or number _____

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0 Does the wetland unit have the potential to reduce flooding and erosion?

R 4.1 Characteristics of the overbank storage the unit provides: *Estimate the average width of the wetland unit perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit)/(average width of stream between banks).* If the ratio is more than 20 points = 9 If the ratio is between 10 – 20 points = 6 If the ratio is between 5 - <10 points = 4 If the ratio is between 1 - <5 points = 2 If the ratio is < 1 points = 1	1
R 4.2 Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are <u>NOT Cowardin</u> classes):* Forest or shrub for >1/3 area OR herbaceous plants > 2/3 area points = 7 Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area points = 4 Plants do not meet above criteria points = 0	7
Total for R 4 Add the points in the boxes above	8

Rating of Site Potential If score is: **12 – 16 = H 6 - 11 = M 0 - 5 = L** *Record the rating on the first page*

R 5.0 Does the landscape have the potential to support the hydrologic functions at the site?

R5.1 Is the stream/river adjacent to the unit downcut? Yes = 0 No = 1	0
R 5.2 Does the contributing basin include a UGA or incorporated area? Yes = 1 No = 0	1
R 5.3 Is the upgradient stream or river controlled by dams? Yes = 0 No = 1	0
Total for R 5 Add the points in the boxes above	1

Rating of Landscape Potential If score is: **3 = H 2 = M 0 = L** *Record the rating on the first page*

R 6.0 Are the hydrologic functions provided by the site valuable to society?

R 6.1 Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.* • The sub-basin immediately down-gradient of site has flooding problems that has damaged human or natural resources (e.g., salmon redds) points = 2 • Surface flooding problems are in a sub-basin further down-gradient. points = 1 No flooding problems anywhere downstream. points = 0	2
R 6.2 Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for R 6 Add the points in the boxes above	2

Rating of Value If score is: **2 – 4 = H 1 = M 0 = L** *Record the rating on the first page*

Wetland name or number _____

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat.

H 1. Does the wetland unit have the potential to provide habitat for many species?

H 1.1 Structure of plant community – *indicators are Cowardin classes and layers in forest.* Check the Cowardin plant classes in unit – *Polygons for each class must total ¼ acre, or more than 10% of the unit if it is smaller than 2.5 acres*. *Add the number of structures checked*

____Aquatic bed	4 structures or more	points = 4
X___Emergent plants	3 structures	points = 2
X___Scrub-shrub (areas where shrubs have > 30% cover)	2 structures	points = 1
X___Forested (areas where trees have > 30% cover)	1 structure	points = 0

If the unit has a forested class check if:

X__The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

4

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count (*see text for descriptions of hydroperiods*).

X___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 = 1
____Saturated only	1 type present	points = 0

X___Permanently flowing stream or river in, or adjacent to, the wetland

____Seasonally flowing stream in, or adjacent to, the wetland

____**Lake-fringe wetland = 2 points**

____**Freshwater tidal wetland = 2 points**

3

H 1.3. Richness of Plant Species

Count the number of plant species in the wetland unit that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle***

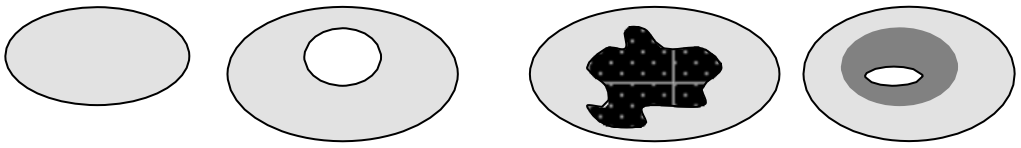
If you counted:	> 19 species	points = 2
	5 - 19 species	points = 1
	< 5 species	points = 0

2

H 1.4. Interspersion of habitats

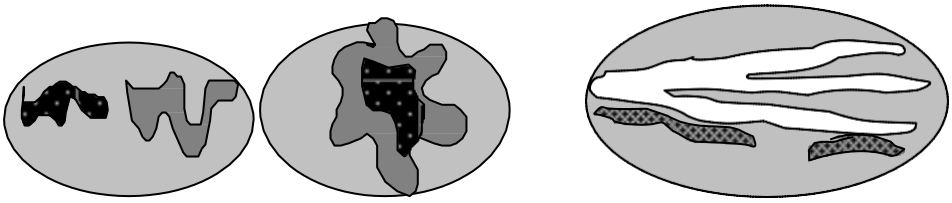
Decide from the diagrams below whether interspersion between Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

NOTE: If you have four or more classes or three plants classes and open water the rating is always "high."



None = 0 points **Low** = 1 point **Moderate** = 2 points

All three diagrams in this row are **HIGH = 3points**



3

Wetland name or number _____

H 1.5. Special Habitat Features: Check the habitat features that are present in the wetland. *The number of checks is the number of points* X Large, downed, woody debris within the unit (>4 inches diameter and 6 ft long). X Standing snags (diameter at the bottom > 4 inches) within the unit X Undercut banks are present for at least 6.6 ft (2m) **and/or** overhanging plants extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m) X 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 weathered where wood is exposed)* X At least ¼ acre of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	5
H 1. TOTAL Score - potential for providing habitat	17

Rating of Site Potential: If score is **15 - 18 = H** **7 – 14 = M** **0 – 6 = L** *Record the rating on the first page*

H 2.0 Does the landscape have the potential to support habitat at the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat **+** [(% moderate and low intensity land uses)/2] **=** _____ If total accessible habitat is: > 1/3 (33.3%) of 1 km circle *(~100 hectares or 250 acres)* points = 3 20 - 33% of 1 km circle points = 2 10 - 19% of 1 km circle points = 1 <10% of 1 km circle points = 0	3
H 2.2 Undisturbed habitat in 1 km circle around unit. Undisturbed habitat > 50% of circle points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of circle points = 0	2
H 2.3 Land use intensity in 1 km circle. If: > 50% of circle is high intensity land use points = (- 2) < =50% of circle is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	5

Rating of Landscape Potential If score is**:** **4- 6 = H** **1-3 = M** **< 1 = L** *Record the rating on the first page*

H 3.0 Is the Habitat provided by the site valuable to society?	
H3.1Does the site provides habitat for species valued in laws, regulations or policies? *(choose only the highest score)* Site meets ANY of the following criteria: points = 2 • It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) • It is a "priority area" for an individual WDFW species • It is a Wetland With a High Conservation Value as determined by the Department of Natural Resources • It has 3 or more priority habitats within 100m (see next page) • It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats within 100m (see next page) points = 1 Site does not meet any of the criteria above points = 0	

Rating of Value If score is **2 = H** **1 = M** **0 = L** *Record the rating on the first page*

Wetland name or number _____

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf)

Count how many of the following priority habitats are within 330 ft (100m) of the wetland unit? *NOTE: This question is independent of the land use between the wetland unit and the priority habitat.*

___**Aspen Stands:** Pure or mixed stands of aspen greater than 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.

_X_**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.

_X_**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 – see web link above*).

_X_**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

___**Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

_X_**Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

___**Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

___**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

___**Cliffs:** Greater than 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.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number _____

Wetland name or number _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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 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** ***not an estuarine wetland***	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES = Category I** **NO go to 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 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 non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II**
SC 2.0 Wetlands with High Conservation Value (WHCV) SC 2.1 Has the Department of Natural Resources updated their web site to include the list of Wetlands with High Conservation Value? **YES - Go to SC 2.2** **NO – Go to SC 2.3** SC 2.2 Is the wetland unit you are rating listed on the DNR database as having a High Conservation Value? **YES = Category I** **NO = not a WHCV** SC 2.3 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf **YES – contact WNHP/DNR and go to SC 2.4** **NO = not a WHCV** SC 2.4 Has DNR identified the wetland within the S/T/R as a wetland with High Conservation value and is listed on their web site? **YES = Category I** **NO = not an WHCV**	**Cat. I**
SC 3.0 Bogs Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? YES - go to Question SC 3.3 NO - go to Question SC 3.2 SC 3.2 Does an area within the wetland unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? YES - go to Question SC 3.3 **NO - Is not a bog** SC 3.3 Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? **YES – Is a Category I BOG** NO - go to Question SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species are present in Table 4, the wetland is a bog. SC 3.4 Is an area with peats or mucks forested (> 30% cover) with Sitka Spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy. **YES – Is a Category I BOG** **NO - Is not a bog**	**Cat. I**

Wetland name or number _____

SC 4.0 Forested Wetlands Does the wetland unit have at least 1 contiguous acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.* — **Old-growth forests**: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. Ξ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 inches (53cm). **YES = Category I** **NO - not a forested wetland for this section**	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* **YES = Go to SC 5.1** **NO- not a wetland in a coastal lagoon** SC 5.1 Does the wetland meets all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 99). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than 1/10 acre (4350 square feet) **YES = Category I** **NO = Category II**	**Cat. I** **Cat. II**
SC 6.0 Interdunal Wetlands Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES - go to SC 6.1** **NO - not an interdunal wetland for rating** ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula- lands west of SR 103 • Grayland-Westport- lands west of SR 105 • Ocean Shores-Copalis- lands west of SR 115 and SR 109 **SC 6.1** Is the wetland one acre or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? **YES = Category I** **NO – go to SC 6.2** **SC 6.2** Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger? **YES = Category II** **NO – go to SC 6.3** **SC 6.3** Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES = Category III** **NO – Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered NO for all types enter "Not Applicable" on Summary Form	Cat. I

Wetland name or number WL-1b

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland 1b Date of site visit: May 2014

Rated by B. Haddaway Trained by Ecology? Yes_X_No___ Date of training 2004 committee

HGM Class Used for Rating Riverine Unit has multiple HGM classes?__Y_X__N

NOTE: **Form is not complete without the figures requested.** *(figures can be combined)*
Source of base aerial photo/map 2013 NAIP, USDA

OVERALL WETLAND CATEGORY I (based on functions X or special characteristics_X_)

1. Category of wetland based on FUNCTIONS

X **Category I** - Total score = 23 – 27

Category II - Total score = 20 - 22

Category III - Total score = 16 - 19

Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M L	H M L	H M L	
Landscape Potential	H M L	H M L	H M L	
Value	H M L	H M L	H M L	TOTAL
Score Based on Ratings	9	8	8	25

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland with high conservation value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Wetland name or number WL-1b

Maps and figures required to answer questions correctly (Western Washington).

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D1.4	
Boundary of 150 ft buffer *(can be added to another figure)*	D 2.2, D 5.2	
Polygon of area 1km from wetland edge - Including polygons for accessible habitat and undisturbed habitat	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	D 3.1, D 3.2	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1-1
Hydroperiods	H 1.2	1-1
Ponded depressions	R 1.1	1-1
Boundary of 150 ft buffer *(can be added to another figure)*	R 2.4	1-1
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	1-1
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	1-2
Polygon of area 1km from wetland edge -Including polygons for accessible habitat and undisturbed habitat	H 2.1, H2.2	1-2
Screen capture of map of 303d listed waters in basin (from Ecology web site)	R 3.1	4
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	R 3.2, R 3.3	4

Lake-fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of 150 ft buffer *(can be added to another figure)*	L 2.2	
Polygon of area 1km from wetland edge (Including polygons for accessible habitat and undisturbed habitat)	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	L 3.1	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
Polygon of area 1km from wetland edge (Including polygons for accessible habitat and undisturbed habitat)	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	S 3.1, S 3.2	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

For questions 1-7 the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

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 an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 **YES** – The wetland class is **Flats**

*If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 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**?

NO - go to 5 **YES –** The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

_X_ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

_X_ The overbank flooding occurs at least once every two years.

NO - go to 6 **YES** – The wetland class is **Riverine**

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

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 classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes Within the Wetland Unit Being Rated	HGM Class to Use in Rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake-fringe	Depressional
Riverine + Lake-fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

.

Wetland name or number _____

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that site functions to improve water quality

R 1. Does the wetland unit have the potential to improve water quality?	
R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >3/4 area of wetland points = 8 Depressions cover > 1/2 area of wetland points = 4 Depressions present but cover < 1/2 area of wetland points = 2 No depressions present points = 0	8
R 1.2 Structure of plants in the unit (areas with >90% cover at person height, **not** Cowardin classes) Trees or shrubs > 2/3 area of the unit points = 8 Trees or shrubs > 1/3 area of the unit points = 6 Herbaceous plants (> 6" high) > 2/3 area of unit points = 6 Herbaceous plants (> 6" high) > 1/3 area of unit points = 3 Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit points = 0	8
Total for R 1 Add the points in the boxes above	16

Rating of Site Potential If score is: **12 – 16 = H** **6 - 11 = M** **0 - 5 = L** *Record the rating on the first page*

R 2.0 Does the landscape have the potential to support the water quality function at the site?	
R 2.1 Is the unit within an incorporated city or within its UGA? Yes = 2 No = 0	0
R. 2.2 Does the contributing basin include a UGA or incorporated area? Yes = 1 No = 0	1
R 2.3 Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years? Yes = 1 No = 0	1
R 2.4 Is > 10% of the buffer within 150 ft of wetland unit in land uses that generate pollutants Yes = 1 No = 0	1
R 2.5 Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1 – R 2.4 Other sources _____ Yes = 1 No = 0	0
Total for R 2 Add the points in the boxes above	3

Rating of Landscape Potential If score is: **3 - 6 = H** **1 or 2 = M** **0 = L** *Record the rating on the first page*

R 3.0 Is the water quality improvement provided by the site valuable to society?	
R 3.1 Is the unit along a stream or river that is on the 303(d) list or on a tributary that drains to one within one mile? Yes = 1 No = 0	1
R 3.2 Does the river or stream have TMDL limits for nutrients, toxics, or pathogens anywhere downstream? Yes = 1 No = 0	1
R 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which unit is found*) Yes = 2 No = 0	2
Total for R 3 Add the points in the boxes above	4

Rating of Value If score is: **2 - 4 = H** **1 = M** **0 = L** *Record the rating on the first page*

Wetland name or number _____

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0 Does the wetland unit have the potential to reduce flooding and erosion?

R 4.1 Characteristics of the overbank storage the unit provides: *Estimate the average width of the wetland unit perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit)/(average width of stream between banks).* If the ratio is more than 20 points = 9 If the ratio is between 10 – 20 points = 6 If the ratio is between 5 - <10 points = 4 If the ratio is between 1 - <5 points = 2 If the ratio is < 1 points = 1	1
R 4.2 Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are <u>NOT Cowardin</u> classes):* Forest or shrub for >1/3 area OR herbaceous plants > 2/3 area points = 7 Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area points = 4 Plants do not meet above criteria points = 0	7
Total for R 4 Add the points in the boxes above	8

Rating of Site Potential If score is: **12 – 16 = H 6 - 11 = M 0 - 5 = L** *Record the rating on the first page*

R 5.0 Does the landscape have the potential to support the hydrologic functions at the site?

R5.1 Is the stream/river adjacent to the unit downcut? Yes = 0 No = 1	1
R 5.2 Does the contributing basin include a UGA or incorporated area? Yes = 1 No = 0	1
R 5.3 Is the upgradient stream or river controlled by dams? Yes = 0 No = 1	1
Total for R 5 Add the points in the boxes above	3

Rating of Landscape Potential If score is: **3 = H 2 = M 0 = L** *Record the rating on the first page*

R 6.0 Are the hydrologic functions provided by the site valuable to society?

R 6.1 Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.* • The sub-basin immediately down-gradient of site has flooding problems that has damaged human or natural resources (e.g., salmon redds) points = 2 • Surface flooding problems are in a sub-basin further down-gradient. points = 1 No flooding problems anywhere downstream. points = 0	2
R 6.2 Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for R 6 Add the points in the boxes above	2

Rating of Value If score is: **2 – 4 = H 1 = M 0 = L** *Record the rating on the first page*

Wetland name or number _____

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat.

H 1. Does the wetland unit have the potential to provide habitat for many species?

H 1.1 Structure of plant community – *indicators are Cowardin classes and layers in forest.* Check the Cowardin plant classes in unit – *Polygons for each class must total ¼ acre, or more than 10% of the unit if it is smaller than 2.5 acres*. *Add the number of structures checked*

____	Aquatic bed	4 structures or more	points = 4
X___	Emergent plants	3 structures	points = 2
X___	Scrub-shrub (areas where shrubs have > 30% cover)	2 structures	points = 1
X___	Forested (areas where trees have > 30% cover)	1 structure	points = 0

If the unit has a forested class check if:

___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count (*see text for descriptions of hydroperiods*).

X___	Permanently flooded or inundated	4 or more types present	points = 3
X___	Seasonally flooded or inundated	3 types present	points = 2
____	Occasionally flooded or inundated	2 types present	points = 1
____	Saturated only	1 type present	points = 0
X___	Permanently flowing stream or river in, or adjacent to, the wetland		
____	Seasonally flowing stream in, or adjacent to, the wetland		
____	**Lake-fringe wetland = 2 points**		
____	**Freshwater tidal wetland = 2 points**		

2

H 1.3. Richness of Plant Species

Count the number of plant species in the wetland unit that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle***

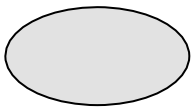
If you counted:	> 19 species	points = 2
	5 - 19 species	points = 1
	< 5 species	points = 0

1

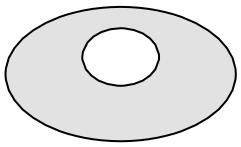
H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion between Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

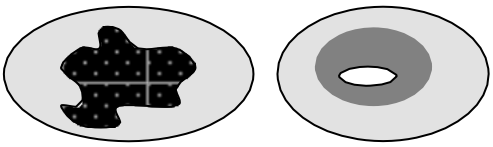
NOTE: If you have four or more classes or three plants classes and open water the rating is always "high."



None = 0 points

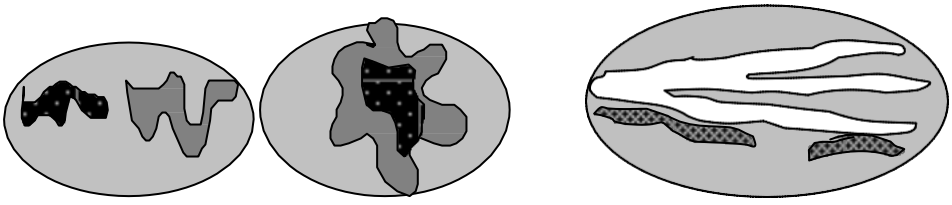


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH = 3points**



3

Wetland name or number _____

H 1.5. Special Habitat Features: Check the habitat features that are present in the wetland. *The number of checks is the number of points* X Large, downed, woody debris within the unit (>4 inches diameter and 6 ft long). ____Standing snags (diameter at the bottom > 4 inches) within the unit X Undercut banks are present for at least 6.6 ft (2m) **and/or** overhanging plants extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m) X 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 weathered where wood is exposed)* X At least ¼ acre of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	4
H 1. TOTAL Score - potential for providing habitat	12

Rating of Site Potential: If score is **15 - 18 = H** **7 – 14 = M** **0 – 6 = L** *Record the rating on the first page*

H 2.0 Does the landscape have the potential to support habitat at the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat **+** [(% moderate and low intensity land uses)/2] **=** _____ If total accessible habitat is: > 1/3 (33.3%) of 1 km circle *(~100 hectares or 250 acres)* points = 3 20 - 33% of 1 km circle points = 2 10 - 19% of 1 km circle points = 1 <10% of 1 km circle points = 0	3
H 2.2 Undisturbed habitat in 1 km circle around unit. Undisturbed habitat > 50% of circle points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of circle points = 0	2
H 2.3 Land use intensity in 1 km circle. If: > 50% of circle is high intensity land use points = (- 2) < =50% of circle is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	5

Rating of Landscape Potential If score is**:** **4- 6 = H** **1-3 = M** **< 1 = L** *Record the rating on the first page*

H 3.0 Is the Habitat provided by the site valuable to society?	
H3.1Does the site provides habitat for species valued in laws, regulations or policies? *(choose only the highest score)* Site meets ANY of the following criteria: points = 2 • It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) • It is a "priority area" for an individual WDFW species • It is a Wetland With a High Conservation Value as determined by the Department of Natural Resources • It has 3 or more priority habitats within 100m (see next page) • It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats within 100m (see next page) points = 1 Site does not meet any of the criteria above points = 0	

Rating of Value If score is **2 = H** **1 = M** **0 = L** *Record the rating on the first page*

Wetland name or number _____

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf)

Count how many of the following priority habitats are within 330 ft (100m) of the wetland unit? *NOTE: This question is independent of the land use between the wetland unit and the priority habitat.*

___**Aspen Stands:** Pure or mixed stands of aspen greater than 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.

_X_**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.

_X_**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 – see web link above*).

_X_**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

___**Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

_X_**Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

___**Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

___**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

___**Cliffs:** Greater than 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.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number _____

Wetland name or number _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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 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** ***not an estuarine wetland***	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES = Category I** **NO go to 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 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 non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II**
SC 2.0 Wetlands with High Conservation Value (WHCV) SC 2.1 Has the Department of Natural Resources updated their web site to include the list of Wetlands with High Conservation Value? **YES - Go to SC 2.2** **NO – Go to SC 2.3** SC 2.2 Is the wetland unit you are rating listed on the DNR database as having a High Conservation Value? **YES = Category I** **NO = not a WHCV** SC 2.3 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf **YES – contact WNHP/DNR and go to SC 2.4** **NO = not a WHCV** SC 2.4 Has DNR identified the wetland within the S/T/R as a wetland with High Conservation value and is listed on their web site? **YES = Category I** **NO = not an WHCV**	**Cat. I**
SC 3.0 Bogs Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? YES - go to Question SC 3.3 NO - go to Question SC 3.2 SC 3.2 Does an area within the wetland unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? YES - go to Question SC 3.3 **NO - Is not a bog** SC 3.3 Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? **YES – Is a Category I BOG** NO - go to Question SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species are present in Table 4, the wetland is a bog. SC 3.4 Is an area with peats or mucks forested (> 30% cover) with Sitka Spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy. **YES – Is a Category I BOG** **NO - Is not a bog**	**Cat. I**

Wetland name or number _____

SC 4.0 Forested Wetlands

Does the wetland unit have at least 1 contiguous acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.*

- **Old-growth forests**: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.
- **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 inches (53cm).

YES = Category I **NO - not a forested wetland for this section**

Cat. I

SC 5.0 Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

- The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks
- The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)*

YES = Go to SC 5.1 **NO- not a wetland in a coastal lagoon**

Cat. I

Cat. II

SC 5.1 Does the wetland meets all of the following three conditions?

- The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 99).
- At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
- The wetland is larger than 1/10 acre (4350 square feet)

YES = Category I **NO = Category II**

SC 6.0 Interdunal Wetlands

Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?

YES - go to SC 6.1 **NO - not an interdunal wetland for rating**

If you answer yes you will still need to rate the wetland based on its habitat functions.

In practical terms that means the following geographic areas:

- Long Beach Peninsula- lands west of SR 103
- Grayland-Westport- lands west of SR 105
- Ocean Shores-Copalis- lands west of SR 115 and SR 109

Cat I

Cat. II

SC 6.1 Is the wetland one acre or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

YES = Category I **NO – go to SC 6.2**

Cat. III

SC 6.2 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger?

YES = Category II **NO – go to SC 6.3**

Cat. IV

SC 6.3 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?

YES = Category III **NO – Category IV**

Category of wetland based on Special Characteristics
If you answered NO for all types enter "Not Applicable" on Summary Form

Cat. I

Wetland name or number _____

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland 1-C Date of site visit: 8/31/2015

Rated by K. Biafora; B. Haddaway Trained by Ecology? X Yes ___No Date of training9/2014

HGM Class used for rating Riverine Wetland has multiple HGM classes?__Y X N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map NAIP 2009

OVERALL WETLAND CATEGORY I (based on functions___or special characteristics X_)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

X **Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
							Circle the appropriate ratings			
Site Potential	H	**M**	L	H	**M**	L	H	**M**	L	
Landscape Potential	H	**M**	L	H	**M**	L	**H**	M	L	
Value	**H**	M	L	**H**	M	L	**H**	M	L	**TOTAL**
Score Based on Ratings	7			7			8			22

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I** **II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I** **II**
Interdunal	**I** **II** **III** **IV**
None of the above	

Wetland name or number _____

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1-1
Hydroperiods	H 1.2	1-1
Ponded depressions	R 1.1	1-1
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	1-1
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	1-1
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	1-2
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	1-2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	4
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	4

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number _____

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**

   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**

   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ___The wetland is on a slope (*slope can be very gradual*),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ___The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number _____

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit 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 of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number _____

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?	
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event: Depressions cover > $^3/_4$ area of wetland points = 8 Depressions cover > ½ area of wetland points = 4 Depressions present but cover < ½ area of wetland points = 2 No depressions present points = 0	2
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes) Trees or shrubs > $^2/_3$ area of the wetland points = 8 Trees or shrubs > $^1/_3$ area of the wetland points = 6 Herbaceous plants (> 6 in high) > $^2/_3$ area of the wetland points = 6 Herbaceous plants (> 6 in high) > $^1/_3$ area of the wetland points = 3 Trees, shrubs, and ungrazed herbaceous < $^1/_3$ area of the wetland points = 0	6
Total for R 1 Add the points in the boxes above	8

Rating of Site Potential If score is: ___**12-16 = H** **X** **6-11 = M** ___**0-5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?	
R 2.1. Is the wetland within an incorporated city or within its UGA? Yes = 2 No = 0	0
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area? Yes = 1 No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years? Yes = 1 No = 0	1
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____ Yes = 1 No = 0	0
Total for R 2 Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___**3-6 = H** **X** **1 or 2 = M** ___**0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?	
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi? Yes = 1 No = 0	1
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens? Yes = 1 No = 0	1
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*) Yes = 2 No = 0	2
Total for R 3 Add the points in the boxes above	4

Rating of Value If score is: **X** **2-4 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number _____

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?

R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).* If the ratio is more than 20 If the ratio is 10-20 If the ratio is 5-<10 If the ratio is 1-<5 If the ratio is < 1	points = 9 points = 6 points = 4 points = 2 points = 1	2
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).* Forest or shrub for > $^1/_3$ area OR emergent plants > $^2/_3$ area Forest or shrub for > $^1/_{10}$ area OR emergent plants > $^1/_3$ area Plants do not meet above criteria	points = 7 points = 4 points = 0	7
Total for R 4	Add the points in the boxes above	9

Rating of Site Potential If score is: ___**12-16 = H** **X** **6-11 = M** ___**0-5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0 No = 1	1
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1 No = 0	1
R 5.3. Is the up-gradient stream or river controlled by dams?	Yes = 0 No = 1	0
Total for R 5	Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___**3 = H** **X** **1 or 2 = M** ___**0 = L** *Record the rating on the first page*

R 6.0. Are the hydrologic functions provided by the site valuable to society?

R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site*. The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) Surface flooding problems are in a sub-basin farther down-gradient No flooding problems anywhere downstream	points = 2 points = 1 points = 0	2
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for R 6	Add the points in the boxes above	2

Rating of Value If score is: **X** **2-4 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number _____

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

____	Aquatic bed	4 structures or more: points = 4
_X_	Emergent	3 structures: points = 2
____	Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
_X_	Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

____	Permanently flooded or inundated	4 or more types present: points = 3
____	Seasonally flooded or inundated	3 types present: points = 2
____	Occasionally flooded or inundated	2 types present: points = 1
____	Saturated only	1 type present: points = 0
____	Permanently flowing stream or river in, or adjacent to, the wetland	
____	Seasonally flowing stream in, or adjacent to, the wetland	
____	**Lake Fringe wetland**	**2 points**
_X_	**Freshwater tidal wetland**	**2 points**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

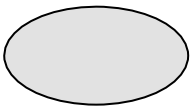
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

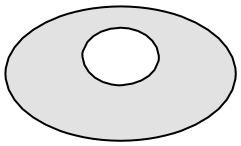
1

H 1.4. Interspersion of habitats

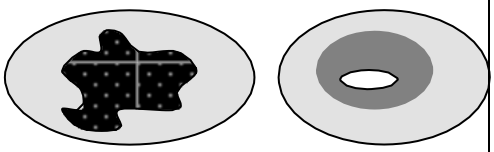
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

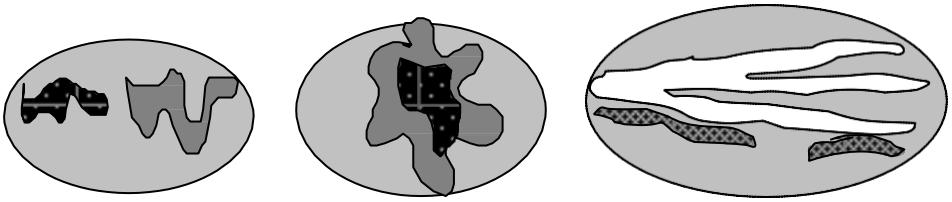


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



1

Wetland name or number _____

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) X Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* X At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	8

Rating of Site Potential If score is: ___**15-18 = H** **X** **7-14 = M** ___**0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 80 **+** [(% moderate and low intensity land uses)/2] 20 **= 100** % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 55 **+** [(% moderate and low intensity land uses)/2]22 **= 77** % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	6

Rating of Landscape Potential If score is: **X** **4-6 = H** ___**1-3 = M** ___**< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	

Rating of Value If score is: **X** **2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number _____

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** 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 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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 Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – Contact WNHP/WDNR and go to SC 2.4 No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number _____

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**I**

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Wetland name or number _____

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland 4 Date of site visit: 11/16/2015

Rated by K. Biafora; B. Haddaway Trained by Ecology? X Yes ___No Date of training9/2014

HGM Class used for rating Slope Wetland has multiple HGM classes? __Y X N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map NAIP 2009

OVERALL WETLAND CATEGORY III (based on functions X or special characteristics__)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

X_____**Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
							Circle the appropriate ratings			
Site Potential	H	M	**L**	H	**M**	L	H	M	**L**	
Landscape Potential	H	M	**L**	H	M	**L**	**H**	M	L	
Value	**H**	M	L	**H**	M	L	**H**	M	L	**TOTAL**
Score Based on Ratings	5			6			7			18

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	

Wetland name or number _____

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1-1
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	1-1
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	1-2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	4
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	4

Wetland name or number _____

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ___The wetland is on a slope (*slope can be very gradual*),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ___The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number _____

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit 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 of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number _____

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	3
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	2
Total for S 1 Add the points in the boxes above	5

Rating of Site Potential If score is: ___**12 = H** ___**6-11 = M** **X** **0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	0

Rating of Landscape Potential If score is: ___**1-2 = M** **X** **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. Yes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 No = 0	1
Total for S 3 Add the points in the boxes above	2

Rating of Value If score is: **X** **2-4 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number _____

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?

S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^1/_8$ in), or dense enough, to remain erect during surface flows.*		
Dense, uncut, **rigid** plants cover > 90% of the area of the wetland	points = 1	1
All other conditions	points = 0	

Rating of Site Potential If score is: **X 1 = M ___0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?	Yes = 1 No = 0	0

Rating of Landscape Potential If score is: **___1 = M X 0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?

S 6.1. Distance to the nearest areas downstream that have flooding problems:		
The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	2
No flooding problems anywhere downstream	points = 0	
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for S 6	Add the points in the boxes above	2

Rating of Value If score is: **X 2-4 = H ___1 = M ___0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number _____

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

____Aquatic bed	4 structures or more: points = 4
____Emergent	3 structures: points = 2
____Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
_X_Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

_X_The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

____Permanently flooded or inundated	4 or more types present: points = 3
____Seasonally flooded or inundated	3 types present: points = 2
____Occasionally flooded or inundated	2 types present: points = 1
_X_Saturated only	1 type present: points = 0
____Permanently flowing stream or river in, or adjacent to, the wetland	
____Seasonally flowing stream in, or adjacent to, the wetland	
____**Lake Fringe wetland**	**2 points**
____**Freshwater tidal wetland**	**2 points**

0

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

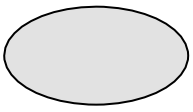
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

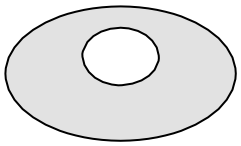
1

H 1.4. Interspersion of habitats

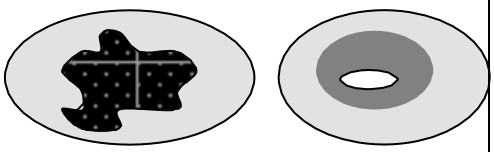
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

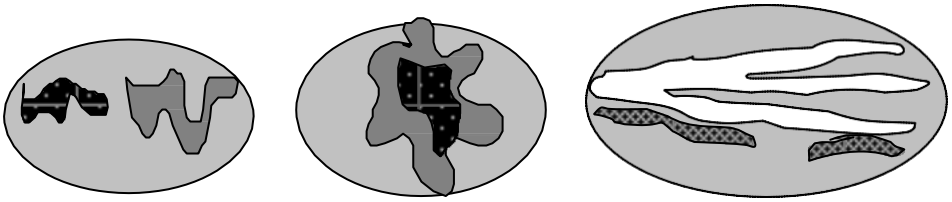


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



0

Wetland name or number _____

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	4

Rating of Site Potential If score is: ___**15-18 = H** ___**7-14 = M** **X** **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 80 **+** [(% moderate and low intensity land uses)/2] 10 **= 90** % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 80 **+** [(% moderate and low intensity land uses)/2]22 **= 77** % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	6

Rating of Landscape Potential If score is: **X** **4-6 = H** ___**1-3 = M** ___**< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	

Rating of Value If score is: **X** **2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number _____

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** 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 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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 Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – Contact WNHP/WDNR and go to SC 2.4 No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number _____

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**I**

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Wetland name or number _____

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland 5 Date of site visit: 11/16/2015

Rated by K. Biafora; B. Haddaway Trained by Ecology? X Yes ___No Date of training9/2014

HGM Class used for rating Slope Wetland has multiple HGM classes? __Y X N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map NAIP 2009

OVERALL WETLAND CATEGORY III (based on functions X or special characteristics__)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

X_____**Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
							Circle the appropriate ratings			
Site Potential	H	**M**	L	H	**M**	L	H	M	**L**	
Landscape Potential	H	M	**L**	H	M	**L**	**H**	M	L	
Value	**H**	M	L	**H**	M	L	**H**	M	L	**TOTAL**
Score Based on Ratings	6			6			7			19

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	

Wetland name or number _____

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1-1
Hydroperiods	H 1.2	1-1
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	1-1
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	1-2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	4
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	4

Wetland name or number _____

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ___The wetland is on a slope (*slope can be very gradual*),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ___The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number _____

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit 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 of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number _____

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	3
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	6
Total for S 1 Add the points in the boxes above	9

Rating of Site Potential If score is: ___**12 = H** **X** **6-11 = M** ___**0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	0

Rating of Landscape Potential If score is: ___**1-2 = M** **X** **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. Yes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 No = 0	1
Total for S 3 Add the points in the boxes above	2

Rating of Value If score is: **X** **2-4 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number _____

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?

S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^1/_8$ in), or dense enough, to remain erect during surface flows.*		
Dense, uncut, **rigid** plants cover > 90% of the area of the wetland	points = 1	1
All other conditions	points = 0	

Rating of Site Potential If score is: **X 1 = M ___0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?	Yes = 1 No = 0	0

Rating of Landscape Potential If score is: **___1 = M X 0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?

S 6.1. Distance to the nearest areas downstream that have flooding problems:		
The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	2
No flooding problems anywhere downstream	points = 0	
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for S 6	Add the points in the boxes above	2

Rating of Value If score is: **X 2-4 = H ___1 = M ___0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number _____

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

____	Aquatic bed	4 structures or more: points = 4
_X_	Emergent	3 structures: points = 2
_X_	Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
____	Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

____	Permanently flooded or inundated	4 or more types present: points = 3
____	Seasonally flooded or inundated	3 types present: points = 2
____	Occasionally flooded or inundated	2 types present: points = 1
_X_	Saturated only	1 type present: points = 0
____	Permanently flowing stream or river in, or adjacent to, the wetland	
____	Seasonally flowing stream in, or adjacent to, the wetland	
____	**Lake Fringe wetland**	**2 points**
____	**Freshwater tidal wetland**	**2 points**

0

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

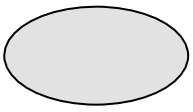
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted:	> 19 species	points = 2
	5 - 19 species	points = 1
	< 5 species	points = 0

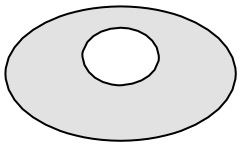
1

H 1.4. Interspersion of habitats

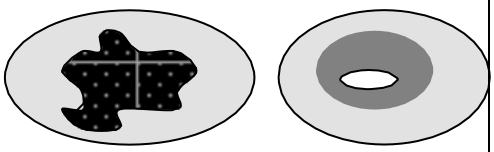
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

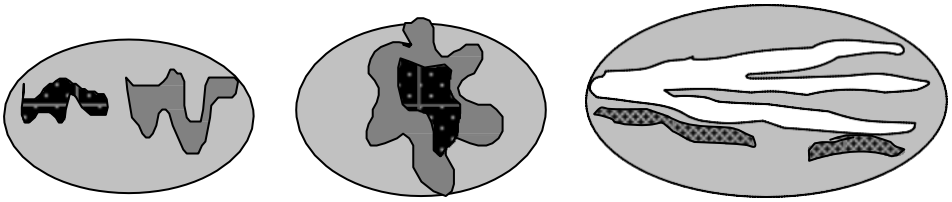


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



1

Wetland name or number _____

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	0
Total for H 1 Add the points in the boxes above	3

Rating of Site Potential If score is:___**15-18 = H** ___**7-14 = M** **X** **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 80 **+** [(% moderate and low intensity land uses)/2] 10 **= 90** % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 80 **+** [(% moderate and low intensity land uses)/2]22 **= 77** % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	6

Rating of Landscape Potential If score is: **X** **4-6 = H** ___**1-3 = M** ___**< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	

Rating of Value If score is: **X** **2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number _____

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** 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 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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 Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – Contact WNHP/WDNR and go to SC 2.4 No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number _____

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**I**

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Legend

- Study Area Boundary - 372.72 total acres
- Water Howellia Occurrence
- R 2.4 Habitat Buffer (150 ft.)
- Rating Unit Boundaries
- Palustrine Emergent,Temporarily Flooded (PEMA)
- Palustrine Forested, Broad-Leaved Deciduous, Temporarily Flooded (PFO1A)
- Palustrine Forested, Broad-Leaved Deciduous, Saturated (PFO1B)
- Palustrine Emergent, Seasonally Flooded (PEMC)
- Palustrine Emergent, Artificially Flooded, Diked/Impounded (PEMKh)
- Palustrine Forested, Broad-Leaved Deciduous, Seasonally Flooded (PFO1C)
- Palustrine Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded (PSS1C)
- Riverine Non-Persistent Emergent, Seasonally-Tidally Flooded (R1EMR)
- Palustrine Unconsolidated Bottom , Artificially Flooded, Diked/Impounded (PUBKh)
- Riverine-Tidal Unconsolidated Bottom, Permanently-Tidally Flooded (R1UBV; Aquatic Habitat)

Date: 5/6/2016

Scale: 1 inch = 550 feet

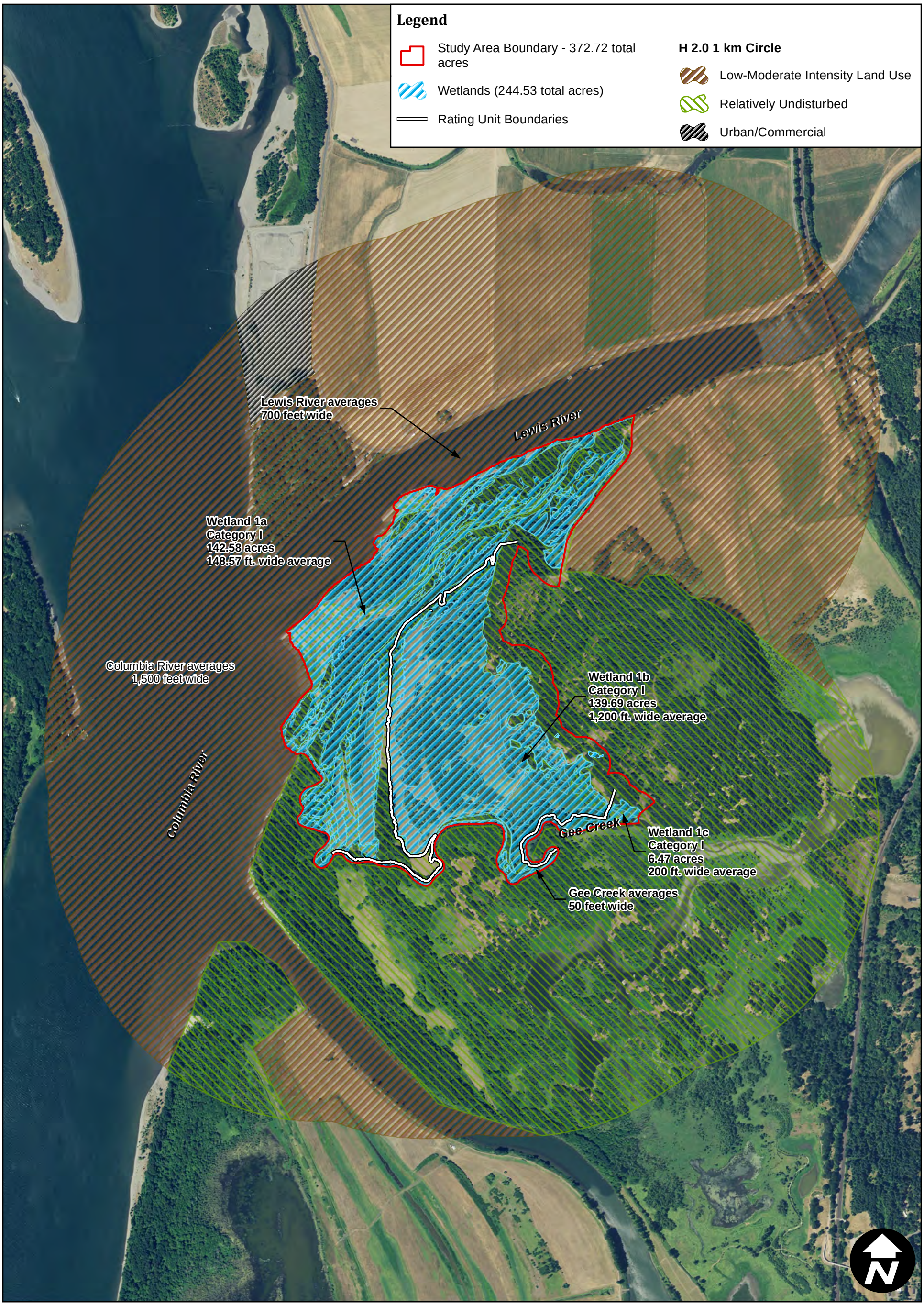
Data Source: Aerial Source: USDA, NAIP, 2015; WA Natural Heritage Program, 2013.

Appendix B: Figure 1-1. Wetland Rating Map

Plas Newydd Farm
Wetland Delineation Report

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet



Date: 5/6/2016

Scale: 1 inch = 1,400 feet

Data Source: Aerial Source: USDA, NAIP, 2015

Appendix B: Figure 1-2. Wetland Rating Map

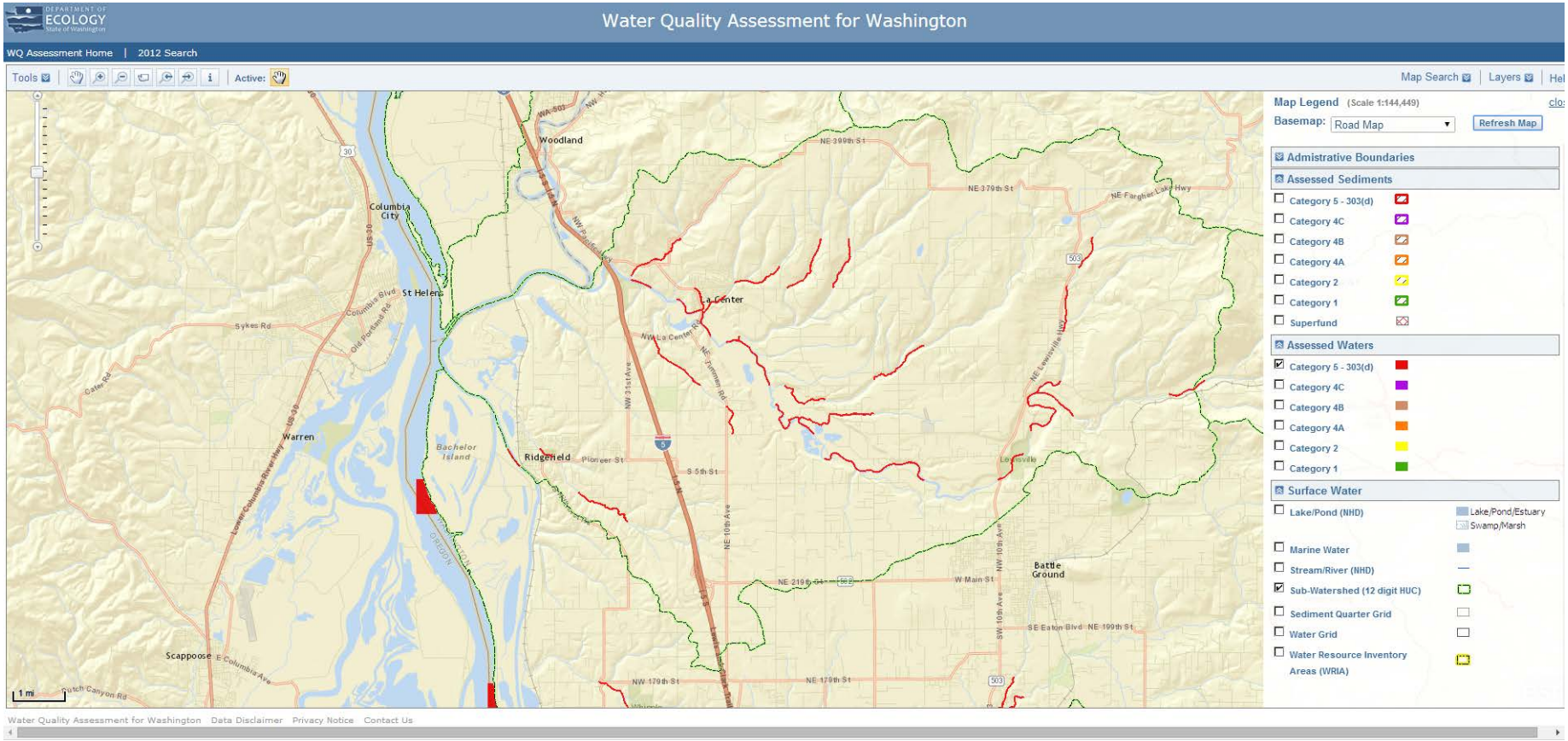
CASCADE ENVIRONMENTAL GROUP

0 500 1,000 2,000 Feet

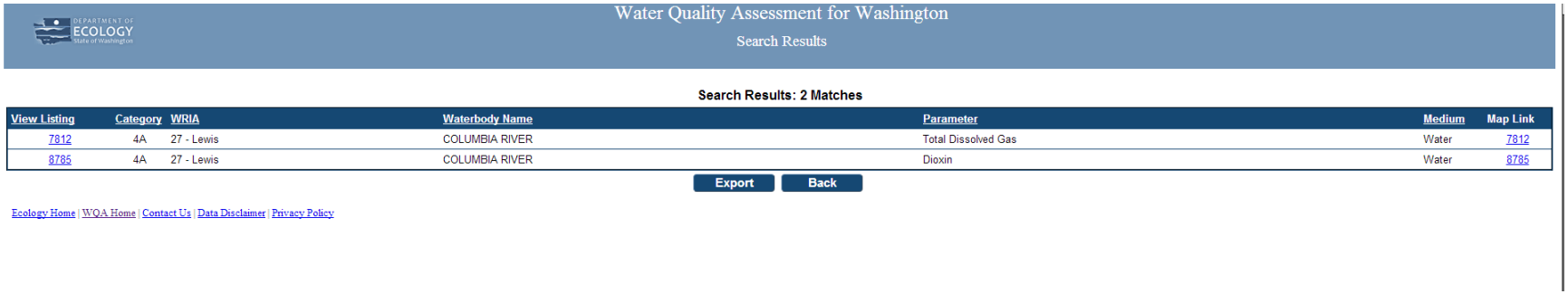
Plas Newydd Farm
Wetland Delineation Report

Z:\GIS\55_PlasNewyyd\Mapfiles\LewisR_GeeCrk_AppB_WetlandRatingMap1-2_2014.mxd

303d Map



TDML List



Wetland name or number WL-2a

RATING SUMMARY – Western Washington

Name of wetland (or ID #): WL-2a Date of site visit: May 2014

Rated by B. Haddaway Trained by Ecology? Yes_X_No___ Date of training 2004 committee

HGM Class Used for Rating Slope Unit has multiple HGM classes?__Y X N

NOTE: **Form is not complete without the figures requested.** *(figures can be combined)*

Source of base aerial photo/map 2013 NAIP, USDA

OVERALL WETLAND CATEGORY III (based on functions X or special characteristics__)

1. Category of wetland based on FUNCTIONS

_____**Category I** - Total score = 23 – 27

_____**Category II** - Total score = 20 - 22

X **Category III** - Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
	Circle the			*appropriate*			*ratings*			
Site Potential	H	M	**L**	H	M	**L**	H	M	**L**	
Landscape Potential	H	**M**	L	H	M	**L**	**H**	M	L	
Value	H	**M**	L	**H**	M	L	**H**	M	L	**TOTAL**
Score Based on Ratings	5			5			7			17

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I** **II**
Wetland with high conservation value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I** **II**
Interdunal	**I** **II** **III** **IV**
None of the above	

Wetland name or number WL-2a

Maps and figures required to answer questions correctly (Western Washington).

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D1.4	
Boundary of 150 ft buffer *(can be added to another figure)*	D 2.2, D 5.2	
Polygon of area 1km from wetland edge - Including polygons for accessible habitat and undisturbed habitat	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	D 3.1, D 3.2	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of 150 ft buffer *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Polygon of area 1km from wetland edge -Including polygons for accessible habitat and undisturbed habitat	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	R 3.1	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake-fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of 150 ft buffer *(can be added to another figure)*	L 2.2	
Polygon of area 1km from wetland edge (Including polygons for accessible habitat and undisturbed habitat)	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	L 3.1	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	2-1
Hydroperiods	H 1.2	2-1
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	2-1
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	2-1
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	2-1
Polygon of area 1km from wetland edge (Including polygons for accessible habitat and undisturbed habitat)	H 2.1, H2.2	2-2
Screen capture of map of 303d listed waters in basin (from Ecology web site)	S 3.1, S 3.2	4
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	S 3.3	4

HGM Classification of Wetlands in Western Washington

For questions 1-7 the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

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 an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 **YES** – The wetland class is **Flats**

*If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 acres (8 ha) in size;

___At least 30% of the open water area is deeper than 6.6 ft (2 m)?

NO – go to 4 **YES –** The wetland class is **Lake-fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

_X_ The wetland is on a slope (*slope can be very gradual*),

_X_ 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.

_X_ The water leaves the wetland **without being impounded**?

NO - go to 5 **YES –** The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

___The overbank flooding occurs at least once every two years.

NO - go to 6 **YES** – The wetland class is **Riverine**

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

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 classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes Within the Wetland Unit Being Rated	HGM Class to Use in Rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake-fringe	Depressional
Riverine + Lake-fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

.

Wetland name or number _____

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1. Does the wetland unit have the potential to improve water quality?	
S 1.1 Characteristics of average slope of unit: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft horizontal distance*) Slope is1% or less points = 3 Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	3
S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES = 3 points NO = 0 points	0
S 1.3 Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense plants means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	0
Total for S 1 Add the points in the boxes above	3

Rating of Site Potential If score is: **12 = H** **6 - 11 = M** **0 - 5 = L** *Record the rating on the first page*

S 2. 0 Does the landscape have the potential to support the water quality function at the site?	
S 2.1 2 Is > 10% of the buffer within 150 ft of wetland unit in land usse that generate pollutants Yes = 1 No = 0	1
S 2.2 Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1 – R 2.4 Other sources _____ Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	1

Rating of Landscape Potential If score is: **1 - 2 = M** **0 = L** *Record the rating on the first page*

S 3.0 Is the water quality improvement provided by the site valuable to society?	
S 3.1 Does the unit discharge directly to a stream, river, or lake that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2 Is the unit in a sub-basin where water quality is an issue? (at least one aquatic resource in the basin is on the 303(d) list) Yes = 1 No = 0	1
S 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality? Yes = 2 No = 0	0
Total for D 3 Add the points in the boxes above	1

Rating of Value If score is: **2 - 4 = H** **1 = M** **0 = L** *Record the rating on the first page*

Wetland name or number _____

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0 Does the wetland unit have the potential to reduce flooding and stream erosion?	
S 4.1 Characteristics of plants that reduce the velocity of surface flows during storms. Choose the points appropriate for the description that best fit conditions in the wetland. *(Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** plants covers > 90% of the area of the wetland. YES = 1 All other conditions = 0	0

Rating of Site Potential If score is: **1 = M** **0 = L** *Record the rating on the first page*

S 5.0 Does the landscape have the potential to support the hydrologic functions at the site?	
S 5.1 Is more than 25% of the buffer area within 150 ft upslope of wetland unit in land uses that generate excess surface runoff. Yes = 1 No = 0	0

Rating of Landscape Potential If score is: **1 = M** **0 = L** *Record the rating on the first page*

S 6.0 Are the hydrologic functions provided by the site valuable to society?	
S 6.1 Distance to the nearest areas downstream that have flooding problems? The sub-basin immediately down-gradient of site has flooding problems that has damaged human or natural resources (e.g., salmon redds) points = 2 Surface flooding problems are in a sub-basin further down-gradient points = 1 No flooding problems anywhere downstream points = 0	2
S 6.2 Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for R 6 Add the points in the boxes above	2

Rating of Value If score is: **2 - 4 = H** **1 = M** **0 = L** *Record the rating on the first*

NOTES and FIELD OBSERVATIONS:

Wetland name or number _____

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat.

H 1. Does the wetland unit have the potential to provide habitat for many species?

H 1.1 Structure of plant community – *indicators are Cowardin classes and layers in forest.* Check the Cowardin plant classes in unit – *Polygons for each class must total ¼ acre, or more than 10% of the unit if it is smaller than 2.5 acres*. *Add the number of structures checked*

____Aquatic bed	4 structures or more	points = 4
X___Emergent plants	3 structures	points = 2
____Scrub-shrub (areas where shrubs have > 30% cover)	2 structures	points = 1
____Forested (areas where trees have > 30% cover)	1 structure	points = 0

If the unit has a forested class check if:

___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

0

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ 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
____Occasionally flooded or inundated	2 types present	points = 1
X___Saturated only	1 type present	points = 0

____Permanently flowing stream or river in, or adjacent to, the wetland

____Seasonally flowing stream in, or adjacent to, the wetland

____**Lake-fringe wetland = 2 points**

____**Freshwater tidal wetland = 2 points**

1

H 1.3. Richness of Plant Species

Count the number of plant species in the wetland unit that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle***

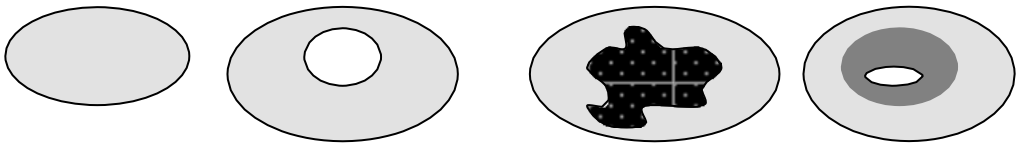
If you counted:	> 19 species	points = 2
	5 - 19 species	points = 1
	< 5 species	points = 0

1

H 1.4. Interspersion of habitats

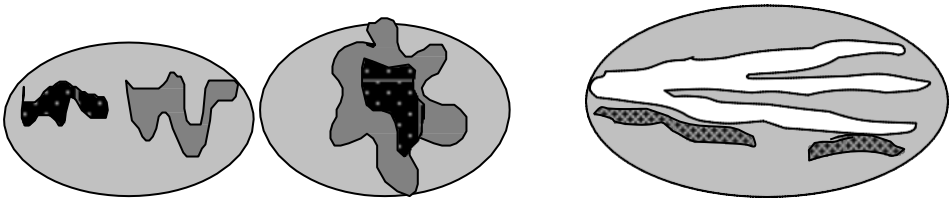
Decide from the diagrams below whether interspersion between Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

NOTE: If you have four or more classes or three plants classes and open water the rating is always "high."



None = 0 points **Low** = 1 point **Moderate** = 2 points

All three diagrams in this row are **HIGH = 3points**



0

Wetland name or number _____

H 1.5. Special Habitat Features: Check the habitat features that are present in the wetland. *The number of checks is the number of points* ____Large, downed, woody debris within the unit (>4 inches diameter and 6 ft long). ____Standing snags (diameter at the bottom > 4 inches) within the unit ____Undercut banks are present for at least 6.6 ft (2m) **and/or** overhanging plants 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 weathered where wood is exposed)* ____At least ¼ acre of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)* _X_Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
H 1. TOTAL Score - potential for providing habitat	3

Rating of Site Potential: If score is **15 - 18 = H** **7 – 14 = M** **0 – 6 = L** *Record the rating on the first page*

H 2.0 Does the landscape have the potential to support habitat at the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat **+** [(% moderate and low intensity land uses)/2] **=** _____ If total accessible habitat is: > 1/3 (33.3%) of 1 km circle *(~100 hectares or 250 acres)* points = 3 20 - 33% of 1 km circle points = 2 10 - 19% of 1 km circle points = 1 <10% of 1 km circle points = 0	3
H 2.2 Undisturbed habitat in 1 km circle around unit. Undisturbed habitat > 50% of circle points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of circle points = 0	2
H 2.3 Land use intensity in 1 km circle. If: > 50% of circle is high intensity land use points = (- 2) < =50% of circle is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	5

Rating of Landscape Potential If score is**:** **4- 6 = H** **1-3 = M** **< 1 = L** *Record the rating on the first page*

H 3.0 Is the Habitat provided by the site valuable to society?	
H3.1Does the site provides habitat for species valued in laws, regulations or policies? *(choose only the highest score)* Site meets ANY of the following criteria: points = 2 • It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) • It is a "priority area" for an individual WDFW species • It is a Wetland With a High Conservation Value as determined by the Department of Natural Resources • It has 3 or more priority habitats within 100m (see next page) • It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats within 100m (see next page) points = 1 Site does not meet any of the criteria above points = 0	

Rating of Value If score is **2 = H** **1 = M** **0 = L** *Record the rating on the first page*

Wetland name or number _____

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf)

Count how many of the following priority habitats are within 330 ft (100m) of the wetland unit? *NOTE: This question is independent of the land use between the wetland unit and the priority habitat.*

___**Aspen Stands:** Pure or mixed stands of aspen greater than 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 – see web link above*).

___**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

___**Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

___**Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

___**Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

___**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

___**Cliffs:** Greater than 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.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number _____

Wetland name or number _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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 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 *not an estuarine wetland***	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES = Category I** **NO go to 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 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 non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II**
SC 2.0 Wetlands with High Conservation Value (WHCV) SC 2.1 Has the Department of Natural Resources updated their web site to include the list of Wetlands with High Conservation Value? **YES - Go to SC 2.2** **NO – Go to SC 2.3** SC 2.2 Is the wetland unit you are rating listed on the DNR database as having a High Conservation Value? **YES = Category I** **NO = not a WHCV** SC 2.3 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf **YES – contact WNHP/DNR and go to SC 2.4** **NO = not a WHCV** SC 2.4 Has DNR identified the wetland within the S/T/R as a wetland with High Conservation value and is listed on their web site? **YES = Category I** **NO = not an WHCV**	**Cat. I**
SC 3.0 Bogs Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? YES - go to Question SC 3.3 NO - go to Question SC 3.2 SC 3.2 Does an area within the wetland unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? YES - go to Question SC 3.3 **NO - Is not a bog** SC 3.3 Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? **YES – Is a Category I BOG** NO - go to Question SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species are present in Table 4, the wetland is a bog. SC 3.4 Is an area with peats or mucks forested (> 30% cover) with Sitka Spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy. **YES – Is a Category I BOG** **NO - Is not a bog**	**Cat. I**

Wetland name or number _____

SC 4.0 Forested Wetlands Does the wetland unit have at least 1 contiguous acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.* — **Old-growth forests**: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. Ξ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 inches (53cm). **YES = Category I NO - not a forested wetland for this section**	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* **YES = Go to SC 5.1 NO- not a wetland in a coastal lagoon** SC 5.1 Does the wetland meets all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 99). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than 1/10 acre (4350 square feet) **YES = Category I NO = Category II**	**Cat. I** **Cat. II**
SC 6.0 Interdunal Wetlands Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES - go to SC 6.1 NO - not an interdunal wetland for rating** ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula- lands west of SR 103 • Grayland-Westport- lands west of SR 105 • Ocean Shores-Copalis- lands west of SR 115 and SR 109 **SC 6.1** Is the wetland one acre or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? **YES = Category I NO – go to SC 6.2** **SC 6.2** Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger? **YES = Category II NO – go to SC 6.3** **SC 6.3** Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES = Category III NO – Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered NO for all types enter "Not Applicable" on Summary Form	Cat. I

Wetland name or number WL-2b

RATING SUMMARY – Western Washington

Name of wetland (or ID #): WL-2b Date of site visit: May 2014

Rated by B. Haddaway Trained by Ecology? Yes_X_No___ Date of training 2004 committee

HGM Class Used for Rating Slope Unit has multiple HGM classes?__Y X N

NOTE: **Form is not complete without the figures requested.** *(figures can be combined)*

Source of base aerial photo/map 2013 NAIP, USDA

OVERALL WETLAND CATEGORY III (based on functions X or special characteristics__)

1. Category of wetland based on FUNCTIONS

_____**Category I** - Total score = 23 – 27

_____**Category II** - Total score = 20 - 22

X **Category III** - Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M **L**	H M **L**	H M **L**	
Landscape Potential	H **M** L	H M **L**	**H** M L	
Value	H **M** L	**H** M L	**H** M L	**TOTAL**
Score Based on Ratings	5	5	7	17

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I** **II**
Wetland with high conservation value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I** **II**
Interdunal	**I** **II** **III** **IV**
None of the above	

Wetland name or number WL-2b

Maps and figures required to answer questions correctly (Western Washington).

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D1.4	
Boundary of 150 ft buffer *(can be added to another figure)*	D 2.2, D 5.2	
Polygon of area 1km from wetland edge - Including polygons for accessible habitat and undisturbed habitat	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	D 3.1, D 3.2	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of 150 ft buffer *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Polygon of area 1km from wetland edge -Including polygons for accessible habitat and undisturbed habitat	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	R 3.1	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake-fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of 150 ft buffer *(can be added to another figure)*	L 2.2	
Polygon of area 1km from wetland edge (Including polygons for accessible habitat and undisturbed habitat)	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	L 3.1	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	2-1
Hydroperiods	H 1.2	2-1
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	2-1
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	2-1
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	2-1
Polygon of area 1km from wetland edge (Including polygons for accessible habitat and undisturbed habitat)	H 2.1, H2.2	2-2
Screen capture of map of 303d listed waters in basin (from Ecology web site)	S 3.1, S 3.2	4
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	S 3.3	4

HGM Classification of Wetlands in Western Washington

For questions 1-7 the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

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 an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 **YES** – The wetland class is **Flats**

*If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 acres (8 ha) in size;

___At least 30% of the open water area is deeper than 6.6 ft (2 m)?

NO – go to 4 **YES –** The wetland class is **Lake-fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

_X_ The wetland is on a slope (*slope can be very gradual*),

_X_ 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.

_X_ The water leaves the wetland **without being impounded**?

NO - go to 5 **YES –** The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

___The overbank flooding occurs at least once every two years.

NO - go to 6 **YES** – The wetland class is **Riverine**

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

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 classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes Within the Wetland Unit Being Rated	HGM Class to Use in Rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake-fringe	Depressional
Riverine + Lake-fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

.

Wetland name or number _____

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1. Does the wetland unit have the potential to improve water quality?	
S 1.1 Characteristics of average slope of unit: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft horizontal distance*) Slope is1% or less points = 3 Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	3
S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES = 3 points NO = 0 points	0
S 1.3 Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense plants means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	0
Total for S 1 Add the points in the boxes above	3

Rating of Site Potential If score is: **12 = H** **6 - 11 = M** **0 - 5 = L** *Record the rating on the first page*

S 2. 0 Does the landscape have the potential to support the water quality function at the site?	
S 2.1 2 Is > 10% of the buffer within 150 ft of wetland unit in land usse that generate pollutants Yes = 1 No = 0	1
S 2.2 Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1 – R 2.4 Other sources _____ Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	1

Rating of Landscape Potential If score is: **1 - 2 = M** **0 = L** *Record the rating on the first page*

S 3.0 Is the water quality improvement provided by the site valuable to society?	
S 3.1 Does the unit discharge directly to a stream, river, or lake that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2 Is the unit in a sub-basin where water quality is an issue? (at least one aquatic resource in the basin is on the 303(d) list) Yes = 1 No = 0	1
S 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality? Yes = 2 No = 0	0
Total for D 3 Add the points in the boxes above	1

Rating of Value If score is: **2 - 4 = H** **1 = M** **0 = L** *Record the rating on the first page*

Wetland name or number _____

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0 Does the wetland unit have the potential to reduce flooding and stream erosion?	
S 4.1 Characteristics of plants that reduce the velocity of surface flows during storms. Choose the points appropriate for the description that best fit conditions in the wetland. *(Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** plants covers > 90% of the area of the wetland. YES = 1 All other conditions = 0	0

Rating of Site Potential If score is: **1 = M** **0 = L** *Record the rating on the first page*

S 5.0 Does the landscape have the potential to support the hydrologic functions at the site?	
S 5.1 Is more than 25% of the buffer area within 150 ft upslope of wetland unit in land uses that generate excess surface runoff. Yes = 1 No = 0	0

Rating of Landscape Potential If score is: **1 = M** **0 = L** *Record the rating on the first page*

S 6.0 Are the hydrologic functions provided by the site valuable to society?	
S 6.1 Distance to the nearest areas downstream that have flooding problems? The sub-basin immediately down-gradient of site has flooding problems that has damaged human or natural resources (e.g., salmon redds) points = 2 Surface flooding problems are in a sub-basin further down-gradient points = 1 No flooding problems anywhere downstream points = 0	2
S 6.2 Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for R 6 Add the points in the boxes above	2

Rating of Value If score is: **2 - 4 = H** **1 = M** **0 = L** *Record the rating on the first*

NOTES and FIELD OBSERVATIONS:

Wetland name or number _____

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat.

H 1. Does the wetland unit have the potential to provide habitat for many species?

H 1.1 Structure of plant community – *indicators are Cowardin classes and layers in forest.* Check the Cowardin plant classes in unit – *Polygons for each class must total ¼ acre, or more than 10% of the unit if it is smaller than 2.5 acres*. *Add the number of structures checked*

____Aquatic bed	4 structures or more	points = 4
X___Emergent plants	3 structures	points = 2
____Scrub-shrub (areas where shrubs have > 30% cover)	2 structures	points = 1
X___Forested (areas where trees have > 30% cover)	1 structure	points = 0

If the unit has a forested class check if:

X__The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ 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
____Occasionally flooded or inundated	2 types present	points = 1
X___Saturated only	1 type present	points = 0

____Permanently flowing stream or river in, or adjacent to, the wetland

____Seasonally flowing stream in, or adjacent to, the wetland

____**Lake-fringe wetland = 2 points**

____**Freshwater tidal wetland = 2 points**

1

H 1.3. Richness of Plant Species

Count the number of plant species in the wetland unit that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle***

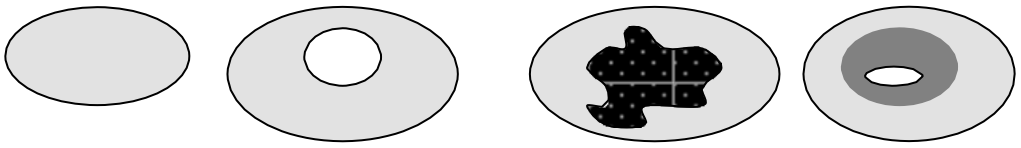
If you counted:	> 19 species	points = 2
	5 - 19 species	points = 1
	< 5 species	points = 0

1

H 1.4. Interspersion of habitats

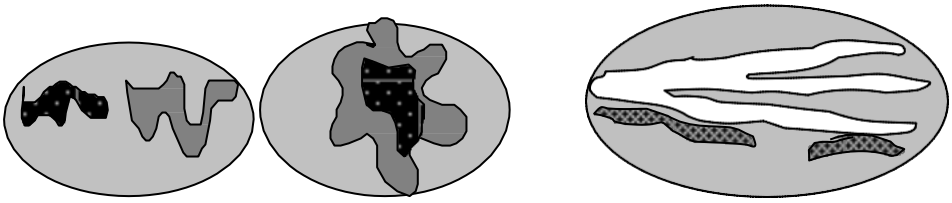
Decide from the diagrams below whether interspersion between Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

NOTE: If you have four or more classes or three plants classes and open water the rating is always "high."



None = 0 points **Low** = 1 point **Moderate** = 2 points

All three diagrams in this row are **HIGH = 3points**



1

Wetland name or number _____

H 1.5. Special Habitat Features: Check the habitat features that are present in the wetland. *The number of checks is the number of points* ____Large, downed, woody debris within the unit (>4 inches diameter and 6 ft long). ____Standing snags (diameter at the bottom > 4 inches) within the unit ____Undercut banks are present for at least 6.6 ft (2m) **and/or** overhanging plants 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 weathered where wood is exposed)* ____At least ¼ acre of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)* _X_Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
H 1. TOTAL Score - potential for providing habitat	6

Rating of Site Potential: If score is **15 - 18 = H** **7 – 14 = M** **0 – 6 = L** *Record the rating on the first page*

H 2.0 Does the landscape have the potential to support habitat at the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat **+** [(% moderate and low intensity land uses)/2] **=** _____ If total accessible habitat is: > 1/3 (33.3%) of 1 km circle *(~100 hectares or 250 acres)* points = 3 20 - 33% of 1 km circle points = 2 10 - 19% of 1 km circle points = 1 <10% of 1 km circle points = 0	3
H 2.2 Undisturbed habitat in 1 km circle around unit. Undisturbed habitat > 50% of circle points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of circle points = 0	2
H 2.3 Land use intensity in 1 km circle. If: > 50% of circle is high intensity land use points = (- 2) < =50% of circle is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	5

Rating of Landscape Potential If score is**:** **4- 6 = H** **1-3 = M** **< 1 = L** *Record the rating on the first page*

H 3.0 Is the Habitat provided by the site valuable to society?	
H3.1Does the site provides habitat for species valued in laws, regulations or policies? *(choose only the highest score)* Site meets ANY of the following criteria: points = 2 • It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) • It is a "priority area" for an individual WDFW species • It is a Wetland With a High Conservation Value as determined by the Department of Natural Resources • It has 3 or more priority habitats within 100m (see next page) • It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats within 100m (see next page) points = 1 Site does not meet any of the criteria above points = 0	

Rating of Value If score is **2 = H** **1 = M** **0 = L** *Record the rating on the first page*

Wetland name or number _____

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf)

Count how many of the following priority habitats are within 330 ft (100m) of the wetland unit? *NOTE: This question is independent of the land use between the wetland unit and the priority habitat.*

___**Aspen Stands:** Pure or mixed stands of aspen greater than 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.

X **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.

X **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 – see web link above*).

___**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

___**Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

___**Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

___**Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

___**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

___**Cliffs:** Greater than 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.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number _____

Wetland name or number _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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 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 *not an estuarine wetland***	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES = Category I** **NO go to 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 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 non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II**
SC 2.0 Wetlands with High Conservation Value (WHCV) SC 2.1 Has the Department of Natural Resources updated their web site to include the list of Wetlands with High Conservation Value? **YES - Go to SC 2.2** **NO – Go to SC 2.3** SC 2.2 Is the wetland unit you are rating listed on the DNR database as having a High Conservation Value? **YES = Category I** **NO = not a WHCV** SC 2.3 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf **YES – contact WNHP/DNR and go to SC 2.4** **NO = not a WHCV** SC 2.4 Has DNR identified the wetland within the S/T/R as a wetland with High Conservation value and is listed on their web site? **YES = Category I** **NO = not an WHCV**	**Cat. I**
SC 3.0 Bogs Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? YES - go to Question SC 3.3 NO - go to Question SC 3.2 SC 3.2 Does an area within the wetland unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? YES - go to Question SC 3.3 **NO - Is not a bog** SC 3.3 Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? **YES – Is a Category I BOG** NO - go to Question SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species are present in Table 4, the wetland is a bog. SC 3.4 Is an area with peats or mucks forested (> 30% cover) with Sitka Spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy. **YES – Is a Category I BOG** **NO - Is not a bog**	**Cat. I**

Wetland name or number _____

SC 4.0 Forested Wetlands Does the wetland unit have at least 1 contiguous acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.* — **Old-growth forests**: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. Ξ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 inches (53cm). **YES = Category I NO - not a forested wetland for this section**	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* **YES = Go to SC 5.1 NO- not a wetland in a coastal lagoon** SC 5.1 Does the wetland meets all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 99). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than 1/10 acre (4350 square feet) **YES = Category I NO = Category II**	**Cat. I** **Cat. II**
SC 6.0 Interdunal Wetlands Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES - go to SC 6.1 NO - not an interdunal wetland for rating** ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula- lands west of SR 103 • Grayland-Westport- lands west of SR 105 • Ocean Shores-Copalis- lands west of SR 115 and SR 109 **SC 6.1** Is the wetland one acre or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? **YES = Category I NO – go to SC 6.2** **SC 6.2** Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger? **YES = Category II NO – go to SC 6.3** **SC 6.3** Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES = Category III NO – Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered NO for all types enter "Not Applicable" on Summary Form	Cat. I

Wetland name or number WL-2C__

RATING SUMMARY – Western Washington

Name of wetland (or ID #): WL-2c: Lancaster Lake Date of site visit: June 2014

Rated by B. Haddaway Trained by Ecology? Yes__No___ Date of training 2004 committee

HGM Class Used for Rating Lake-fringe Unit has multiple HGM classes? _X_ Y ___N

NOTE: **Form is not complete without the figures requested.** *(figures can be combined)*

Source of base aerial photo/map 2013 NAIP, USDA

OVERALL WETLAND CATEGORY II (based on functions X or special characteristics__)

1. Category of wetland based on FUNCTIONS

_____**Category I** - Total score = 23 – 27

X **Category II** - Total score = 20 - 22

_____**Category III** - Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M L	H M L	H M L	
Landscape Potential	H M L	H M L	H M L	
Value	H M L	H M L	H M L	TOTAL
Score Based on Ratings	8	4	8	20

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland with high conservation value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Wetland name or number WL-2C__

Maps and figures required to answer questions correctly (Western Washington).

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D1.4	
Boundary of 150 ft buffer *(can be added to another figure)*	D 2.2, D 5.2	
Polygon of area 1km from wetland edge - Including polygons for accessible habitat and undisturbed habitat	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	D 3.1, D 3.2	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of 150 ft buffer *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Polygon of area 1km from wetland edge -Including polygons for accessible habitat and undisturbed habitat	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	R 3.1	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake-fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	2-1
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	2-1
Boundary of 150 ft buffer *(can be added to another figure)*	L 2.2	2-1
Polygon of area 1km from wetland edge (Including polygons for accessible habitat and undisturbed habitat)	H 2.1, H2.2	2-2
Screen capture of map of 303d listed waters in basin (from Ecology web site)	L 3.1	4
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	L 3.3	4

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
Polygon of area 1km from wetland edge (Including polygons for accessible habitat and undisturbed habitat)	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	S 3.1, S 3.2	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

For questions 1-7 the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

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 an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 **YES** – The wetland class is **Flats**

*If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

X The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 acres (8 ha) in size;

X 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**?

NO - go to 5 **YES –** The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

___The overbank flooding occurs at least once every two years.

NO - go to 6 **YES** – The wetland class is **Riverine**

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

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 classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes Within the Wetland Unit Being Rated	HGM Class to Use in Rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake-fringe	Depressional
Riverine + Lake-fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

.

Wetland name or number _____

LAKE-FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality.

L 1.0 Does the wetland unit have the potential to improve water quality?	
L 1.1 Average width of plants along the lakeshore *(use polygons of Cowardin classes)*: Plants are more than 33 ft (10m) wide points = 6 Plants are more than 16 ft (5m) wide and <33ft points = 3 Plants are more than 6 ft (2m) wide and <16 ft points = 1 Plants are less than 6 ft wide points = 0	6
L 1.2 Characteristics of the plants in the wetland: choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. *These are not Cowardin classes. Area of cover is total cover in the unit, but it can be in patches. Herbaceous does not include aquatic bed.* Cover of herbaceous plants are >90% of the vegetated area points = 6 Cover of herbaceous plants are >2/3 of the vegetated area points = 4 Cover of herbaceous plants are >1/3 of the vegetated area points = 3 Other plants that are not aquatic bed > 2/3 unit points = 3 Other plants that are not aquatic bed in > 1/3 vegetated area points = 1 Aquatic bed plants and open water cover > 2/3 of the unit points = 0	6
Total for L 1 Add the points in the boxes above	12

Rating of Site Potential If score is: **8 - 12 = H** **4 – 7 = M** **0 - 3 = L** *Record the rating on the first page*

L 2. Does the landscape have the potential to support the water quality function at the site?	
L 2.1 Is the lake used by power boats? Yes = 1 No = 0	0
L 2.2 2 Is > 10% of the buffer within 150 ft of wetland unit on the upland side in land uses that generate pollutants? Yes = 1 No = 0	1
L 2.3 Does the lake have problems with algal blooms or excessive plants such as milfoil? Yes = 1 No = 0	0
Total for L 2 Add the points in the boxes above	1

Rating of Landscape PotentiaL: If score is: **2 or 3 = H** **1 = M** **0 = L** **L** *Record the rating on the first page*

L 3.0 Is the water quality improvement provided by the site valuable to society?	
L 3.1 Is the unit on a lake that is on the 303(d) list? Yes = 1 No = 0	0
L 3.2 Is the lake in a sub-basin where water quality is an issue? (at least one aquatic resource in the basin is on the 303(d) list) Yes = 1 No = 0	1
L 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the lake or basin in which unit is found*) Yes = 2 No = 0	2
Total for L 3 Add the points in the boxes above	3

Rating of Value If score is: **2 - 4 = H** **1 = M** **0 = L** *Record the rating on the first page*

Wetland name or number _____

LAKE-FRINGE WETLANDS

Hydrologic Functions - Indicators that the wetland unit functions to reduce shoreline erosion

L 4.0 Does the wetland unit have the potential to reduce shoreline erosion?	
L 4.1 Distance along shore and average width of Cowardin classes along the lakeshore (**do not** include aquatic bed): *(choose the highest scoring description that matches conditions in the wetland)*	
> ¾ of distance is shrubs or forest at least 33 ft (10m) wide — points = 6	
> ¾ of distance is shrubs or forest at least 6 ft (2 m) wide — points = 4	
> ¼ distance is shrubs or forest at least 33 ft (10m) wide — points = 4	
Plants are at least 6 ft (2m) wide (any type except aquatic bed) — points = 2	
Plants are less than 6 ft (2m) wide (any type except aquatic bed) — points = 0	6

Rating of Site Potential: If score is: **6 = M** **0 - 5 = L** *Record the rating on the first page*

L 5.0 Does the landscape have the potential to support hydrologic functions at the site?	
L 5.1 Is the lake used by power boats with more than 10 hp? Yes = 1 No = 0	0
L 5.2 Is the fetch on the lake side of the unit at least 1 mile in distance? Yes = 1 No = 0	0
Total for L 5 Add the points in the boxes above	0

Rating of Landscape Potential If score is: **2 = H** **1 = M** **0 = L** *Record the rating on the first page*

L 6.0 Are the hydrologic functions provided by the site valuable to society?	
L 6.1 If more than one resource is present, choose the one with the highest score.	
There are human structures or old growth/mature forests within 25 ft of OHWM of the shore in the unit. points = 2	
There are nature trails or other paths and recreational activities within 25 ft of OHWM. points = 1	
Other resources that could be impacted by erosion. points = 1	
There are no resources that can be impacted by erosion along the shores of the unit. points = 0	

Rating of Value: If score is**:** **2 = H** **1 = M** **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS: L 6: Wetland is located behind levees, isolating it from floods.

Wetland name or number _____

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat.

H 1. Does the wetland unit have the potential to provide habitat for many species?

H 1.1 Structure of plant community – *indicators are Cowardin classes and layers in forest.* Check the Cowardin plant classes in unit – *Polygons for each class must total ¼ acre, or more than 10% of the unit if it is smaller than 2.5 acres*. *Add the number of structures checked*

X Aquatic bed	4 structures or more	points = 4
X Emergent plants	3 structures	points = 2
X Scrub-shrub (areas where shrubs have > 30% cover)	2 structures	points = 1
____Forested (areas where trees have > 30% cover)	1 structure	points = 0

If the unit has a forested class check if:

___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count (*see text for descriptions of hydroperiods*).

____Permanently flooded or inundated	4 or more types present	points = 3
____Seasonally flooded or inundated	3 types present	points = 2
____Occasionally flooded or inundated	2 types present	points = 1
____Saturated only	1 type present	points = 0

____Permanently flowing stream or river in, or adjacent to, the wetland

____Seasonally flowing stream in, or adjacent to, the wetland

X Lake-fringe wetland = 2 points

____Freshwater tidal wetland = 2 points

2

H 1.3. Richness of Plant Species

Count the number of plant species in the wetland unit that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle***

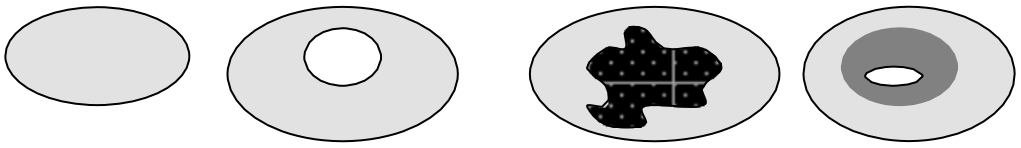
If you counted:	> 19 species	points = 2
	5 - 19 species	points = 1
	< 5 species	points = 0

1

H 1.4. Interspersion of habitats

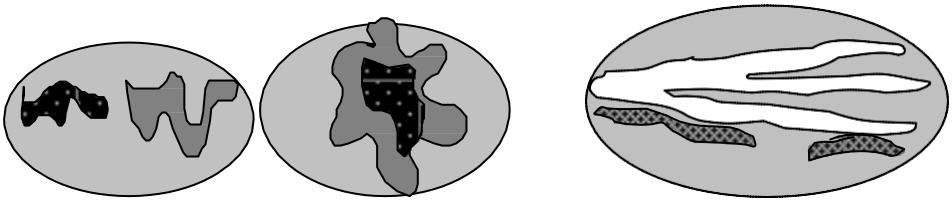
Decide from the diagrams below whether interspersion between Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

NOTE: If you have four or more classes or three plants classes and open water the rating is always "high."



None = 0 points **Low** = 1 point **Moderate** = 2 points

All three diagrams in this row are **HIGH = 3points**



3

Wetland name or number _____

H 1.5. Special Habitat Features: Check the habitat features that are present in the wetland. *The number of checks is the number of points* X Large, downed, woody debris within the unit (>4 inches diameter and 6 ft long). X Standing snags (diameter at the bottom > 4 inches) within the unit ____Undercut banks are present for at least 6.6 ft (2m) **and/or** overhanging plants 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 weathered where wood is exposed)* X At least ¼ acre of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
H 1. TOTAL Score - potential for providing habitat	11

Rating of Site Potential: If score is **15 - 18 = H** **7 – 14 = M** **0 – 6 = L** *Record the rating on the first page*

H 2.0 Does the landscape have the potential to support habitat at the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat **+** [(% moderate and low intensity land uses)/2] **=** _____ If total accessible habitat is: > 1/3 (33.3%) of 1 km circle *(~100 hectares or 250 acres)* points = 3 20 - 33% of 1 km circle points = 2 10 - 19% of 1 km circle points = 1 <10% of 1 km circle points = 0	3
H 2.2 Undisturbed habitat in 1 km circle around unit. Undisturbed habitat > 50% of circle points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of circle points = 0	2
H 2.3 Land use intensity in 1 km circle. If: > 50% of circle is high intensity land use points = (- 2) < =50% of circle is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	5

Rating of Landscape Potential If score is**:** **4- 6 = H** **1-3 = M** **< 1 = L** *Record the rating on the first page*

H 3.0 Is the Habitat provided by the site valuable to society?	
H3.1Does the site provides habitat for species valued in laws, regulations or policies? *(choose only the highest score)* Site meets ANY of the following criteria: points = 2 • It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) • It is a "priority area" for an individual WDFW species • It is a Wetland With a High Conservation Value as determined by the Department of Natural Resources • It has 3 or more priority habitats within 100m (see next page) • It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats within 100m (see next page) points = 1 Site does not meet any of the criteria above points = 0	

Rating of Value If score is **2 = H** **1 = M** **0 = L** *Record the rating on the first page*

Wetland name or number _____

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf)

Count how many of the following priority habitats are within 330 ft (100m) of the wetland unit? *NOTE: This question is independent of the land use between the wetland unit and the priority habitat.*

___**Aspen Stands:** Pure or mixed stands of aspen greater than 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.

_X_**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.

_X_**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 – see web link above*).

_X_**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

___**Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

_X_**Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

___**Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

___**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

___**Cliffs:** Greater than 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.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number _____

Wetland name or number _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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 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 *not an estuarine wetland***	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES = Category I** **NO go to 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 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 non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II**
SC 2.0 Wetlands with High Conservation Value (WHCV) SC 2.1 Has the Department of Natural Resources updated their web site to include the list of Wetlands with High Conservation Value? **YES - Go to SC 2.2** **NO – Go to SC 2.3** SC 2.2 Is the wetland unit you are rating listed on the DNR database as having a High Conservation Value? **YES = Category I** **NO = not a WHCV** SC 2.3 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf **YES – contact WNHP/DNR and go to SC 2.4** **NO = not a WHCV** SC 2.4 Has DNR identified the wetland within the S/T/R as a wetland with High Conservation value and is listed on their web site? **YES = Category I** **NO = not an WHCV**	**Cat. I**
SC 3.0 Bogs Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? YES - go to Question SC 3.3 NO - go to Question SC 3.2 SC 3.2 Does an area within the wetland unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? YES - go to Question SC 3.3 **NO - Is not a bog** SC 3.3 Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? **YES – Is a Category I BOG** NO - go to Question SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species are present in Table 4, the wetland is a bog. SC 3.4 Is an area with peats or mucks forested (> 30% cover) with Sitka Spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy. **YES – Is a Category I BOG** **NO - Is not a bog**	**Cat. I**

Wetland name or number _____

SC 4.0 Forested Wetlands

Does the wetland unit have at least 1 contiguous acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.*

- **Old-growth forests**: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.
- **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 inches (53cm).

YES = Category I **NO - not a forested wetland for this section**

Cat. I

SC 5.0 Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

- The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks
- The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)*

YES = Go to SC 5.1 **NO- not a wetland in a coastal lagoon**

Cat. I

Cat. II

SC 5.1 Does the wetland meets all of the following three conditions?

- The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 99).
- At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
- The wetland is larger than 1/10 acre (4350 square feet)

YES = Category I **NO = Category II**

SC 6.0 Interdunal Wetlands

Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?

YES - go to SC 6.1 **NO - not an interdunal wetland for rating**

If you answer yes you will still need to rate the wetland based on its habitat functions.

In practical terms that means the following geographic areas:

- Long Beach Peninsula- lands west of SR 103
- Grayland-Westport- lands west of SR 105
- Ocean Shores-Copalis- lands west of SR 115 and SR 109

Cat I

Cat. II

SC 6.1 Is the wetland one acre or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

YES = Category I **NO – go to SC 6.2**

Cat. III

SC 6.2 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger?

YES = Category II **NO – go to SC 6.3**

Cat. IV

SC 6.3 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?

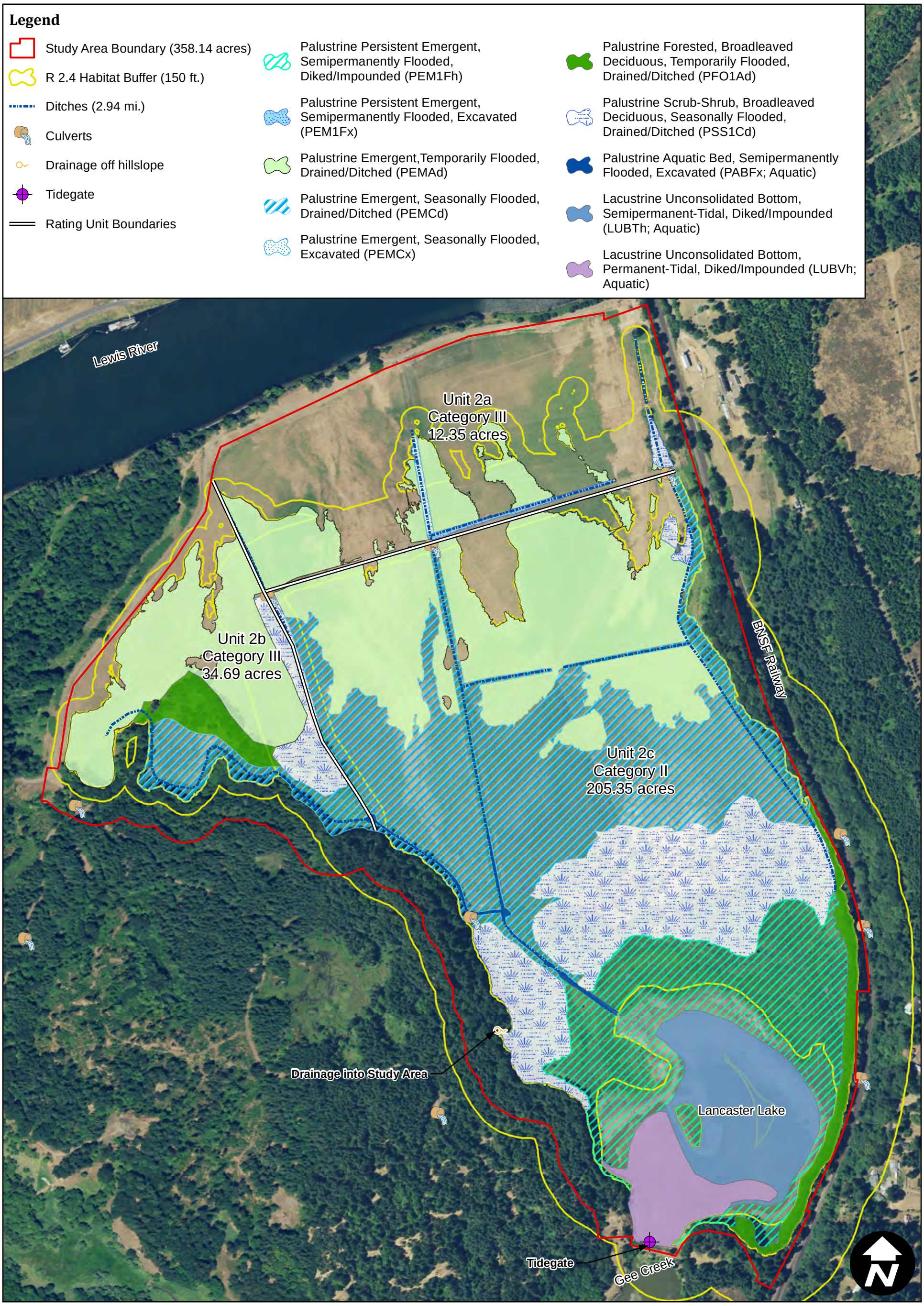
YES = Category III **NO – Category IV**

Category of wetland based on Special Characteristics

If you answered NO for all types enter "Not Applicable" on Summary Form

Legend

- Study Area Boundary (358.14 acres)
- R 2.4 Habitat Buffer (150 ft.)
- Ditches (2.94 mi.)
- Culverts
- Drainage off hillslope
- Tidegate
- Rating Unit Boundaries
- Palustrine Persistent Emergent, Semipermanently Flooded, Diked/Impounded (PEM1Fh)
- Palustrine Persistent Emergent, Semipermanently Flooded, Excavated (PEM1Fx)
- Palustrine Emergent,Temporarily Flooded, Drained/Ditched (PEMAd)
- Palustrine Emergent, Seasonally Flooded, Drained/Ditched (PEMCd)
- Palustrine Emergent, Seasonally Flooded, Excavated (PEMCx)
- Palustrine Forested, Broadleaved Deciduous, Temporarily Flooded, Drained/Ditched (PFO1Ad)
- Palustrine Scrub-Shrub, Broadleaved Deciduous, Seasonally Flooded, Drained/Ditched (PSS1Cd)
- Palustrine Aquatic Bed, Semipermanently Flooded, Excavated (PABFx; Aquatic)
- Lacustrine Unconsolidated Bottom, Semipermanent-Tidal, Diked/Impounded (LUBTh; Aquatic)
- Lacustrine Unconsolidated Bottom, Permanent-Tidal, Diked/Impounded (LUBVh; Aquatic)



Date: 5/6/2016

Scale: 1 inch = 550 feet

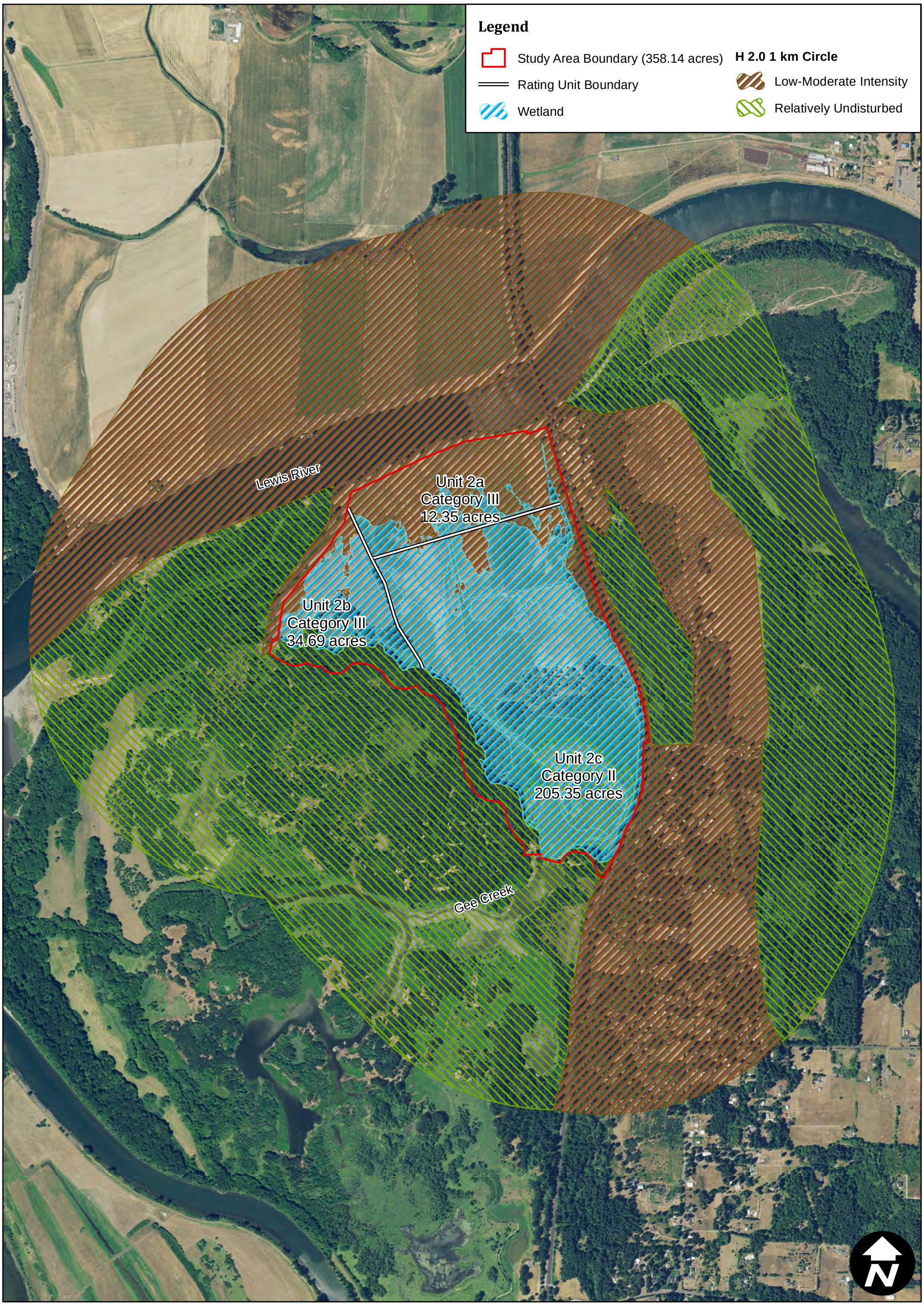
Aerial Source: USDA, NAIP, 2015

Appendix B: Figure 2-1. Wetland Rating Map

Plas Newydd Farm
Wetland Delineation Report

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet



Date: 5/6/2016

Scale: 1 inch = 1,200 feet

Aerial Source: USDA, NAIP, 2015

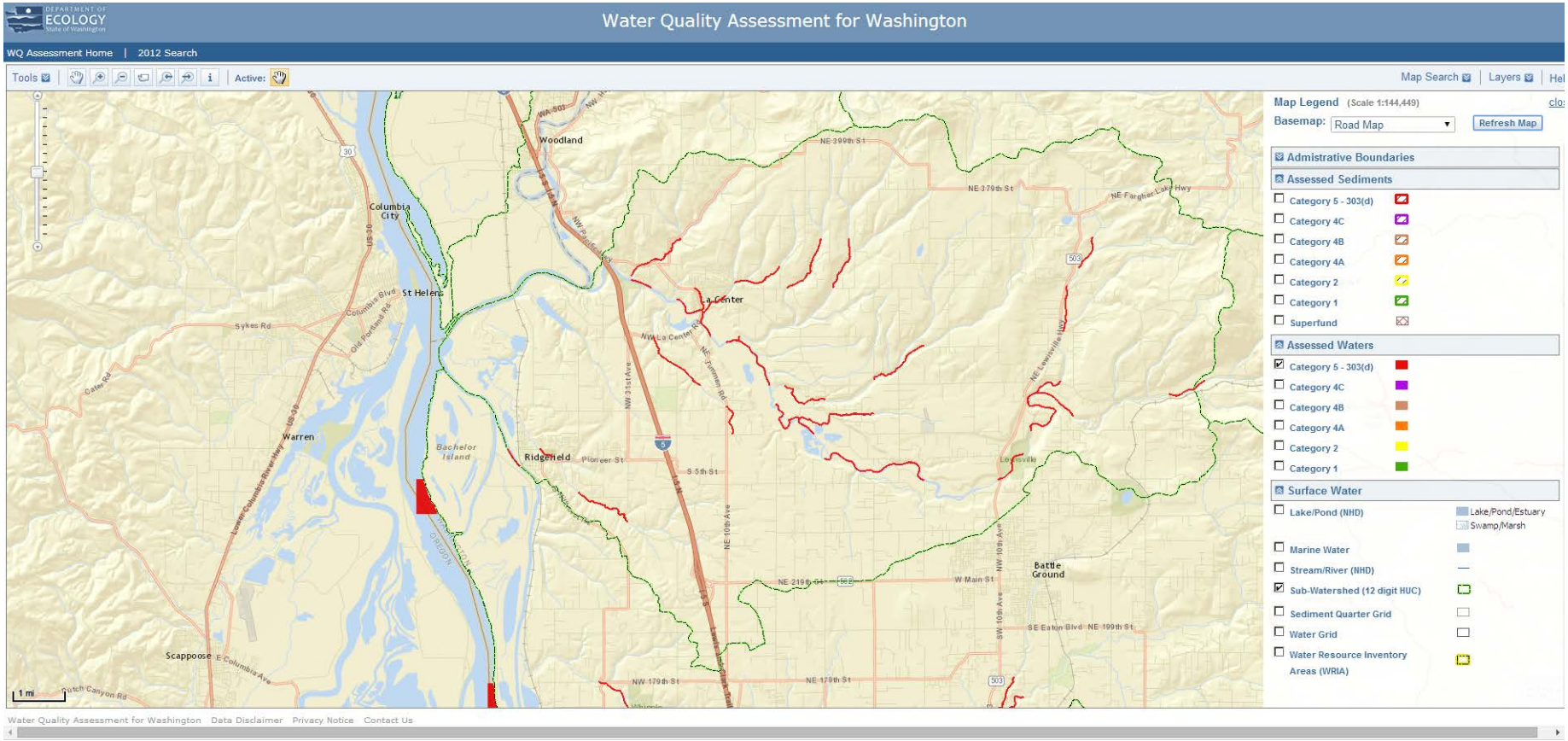
Appendix B: Figure 2-2. Wetland Rating Map

Plas Newydd Farm
Wetland Delineation Report

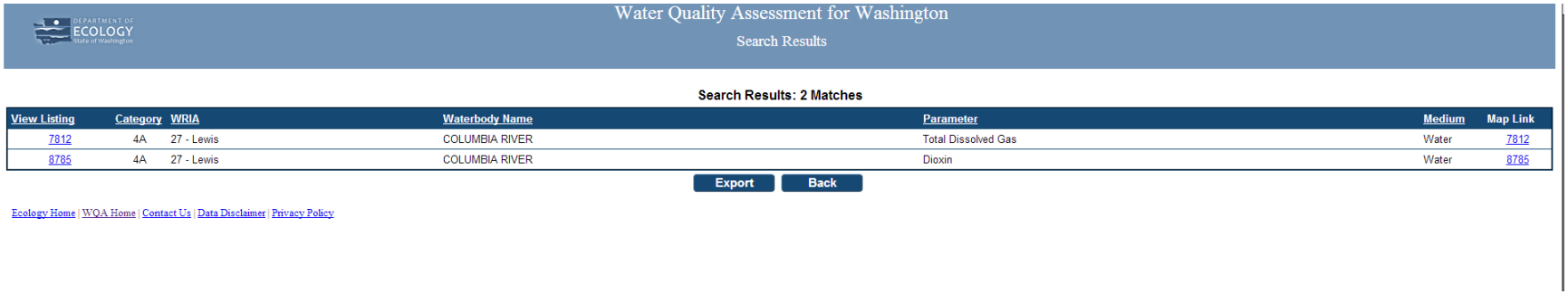
CASCADE ENVIRONMENTAL GROUP

0 500 1,000 2,000 Feet

303d Map



TDML List



Wetland name or number _____

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Unit 3a Date of site visit: 8/31/2015

Rated by K. Biafora; B. Haddaway Trained by Ecology? X Yes ___No Date of training9/2014

HGM Class used for rating Riverine Wetland has multiple HGM classes?__Y X N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map NAIP 2009

OVERALL WETLAND CATEGORY II (based on functions X or special characteristics__)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

X **Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
	Circle the appropriate ratings									
Site Potential	H	M	L	H	M	L	H	M	L	
Landscape Potential	H	M	L	H	M	L	H	M	L	
Value	H	M	L	H	M	L	H	M	L	TOTAL
Score Based on Ratings	7			7			8			22

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	

Wetland name or number _____

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	3-1
Hydroperiods	H 1.2	3-1
Ponded depressions	R 1.1	3-1
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	3-1
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	3-1
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	3-1
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	3-2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	4
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	4

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number _____

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ____The wetland is on a slope (*slope can be very gradual*),
   ____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ____The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ____The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ____The overbank flooding occurs at least once every 2 years.

Wetland name or number _____

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit 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 of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number _____

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?	
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event: Depressions cover > $^3/_4$ area of wetland points = 8 Depressions cover > ½ area of wetland points = 4 Depressions present but cover < ½ area of wetland points = 2 No depressions present points = 0	2
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes) Trees or shrubs > $^2/_3$ area of the wetland points = 8 Trees or shrubs > $^1/_3$ area of the wetland points = 6 Herbaceous plants (> 6 in high) > $^2/_3$ area of the wetland points = 6 Herbaceous plants (> 6 in high) > $^1/_3$ area of the wetland points = 3 Trees, shrubs, and ungrazed herbaceous < $^1/_3$ area of the wetland points = 0	8
Total for R 1 Add the points in the boxes above	10

Rating of Site Potential If score is: ___ **12-16 = H** **X** **6-11 = M** ___ **0-5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?	
R 2.1. Is the wetland within an incorporated city or within its UGA? Yes = 2 No = 0	0
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area? Yes = 1 No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years? Yes = 1 No = 0	1
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____ Yes = 1 No = 0	0
Total for R 2 Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___ **3-6 = H** **X** **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?	
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi? Yes = 1 No = 0	1
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens? Yes = 1 No = 0	1
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*) Yes = 2 No = 0	2
Total for R 3 Add the points in the boxes above	4

Rating of Value If score is: **X** **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number _____

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?

R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).* If the ratio is more than 20 If the ratio is 10-20 If the ratio is 5-<10 If the ratio is 1-<5 If the ratio is < 1	points = 9 points = 6 points = 4 points = 2 points = 1	2
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).* Forest or shrub for > $^1/_3$ area OR emergent plants > $^2/_3$ area Forest or shrub for > $^1/_{10}$ area OR emergent plants > $^1/_3$ area Plants do not meet above criteria	points = 7 points = 4 points = 0	7
Total for R 4	Add the points in the boxes above	9

Rating of Site Potential If score is: ___**12-16 = H** **X** **6-11 = M** ___**0-5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0 No = 1	0
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1 No = 0	1
R 5.3. Is the up-gradient stream or river controlled by dams?	Yes = 0 No = 1	0
Total for R 5	Add the points in the boxes above	1

Rating of Landscape Potential If score is: ___**3 = H** **X** **1 or 2 = M** ___**0 = L** *Record the rating on the first page*

R 6.0. Are the hydrologic functions provided by the site valuable to society?

R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site*. The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) Surface flooding problems are in a sub-basin farther down-gradient No flooding problems anywhere downstream	points = 2 points = 1 points = 0	2
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for R 6	Add the points in the boxes above	2

Rating of Value If score is: **X** **2-4 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number _____

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

____	Aquatic bed	4 structures or more: points = 4
_X_	Emergent	3 structures: points = 2
____	Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
_X_	Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

____	Permanently flooded or inundated	4 or more types present: points = 3
____	Seasonally flooded or inundated	3 types present: points = 2
____	Occasionally flooded or inundated	2 types present: points = 1
____	Saturated only	1 type present: points = 0
____	Permanently flowing stream or river in, or adjacent to, the wetland	
____	Seasonally flowing stream in, or adjacent to, the wetland	
____	**Lake Fringe wetland**	**2 points**
_X_	**Freshwater tidal wetland**	**2 points**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

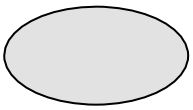
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

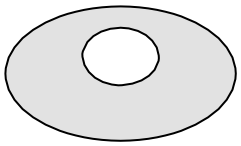
1

H 1.4. Interspersion of habitats

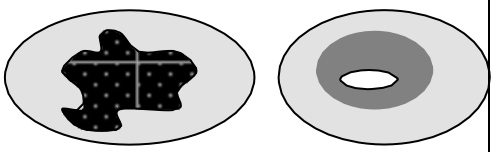
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

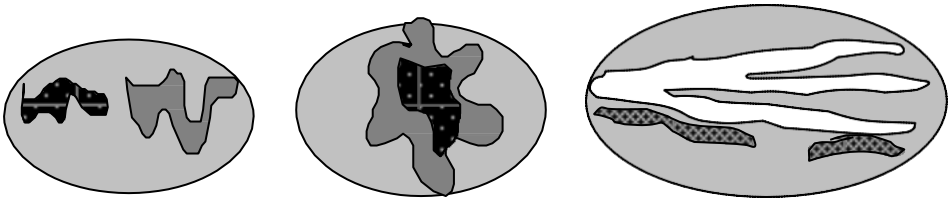


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



2

Wetland name or number _____

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). X Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) X Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* X At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	4
Total for H 1 Add the points in the boxes above	10

Rating of Site Potential If score is:___**15-18 = H** **X** **7-14 = M** ___**0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 80 **+** [(% moderate and low intensity land uses)/2] 10 **= 90** % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 80 **+** [(% moderate and low intensity land uses)/2]22 **= 77** % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	6

Rating of Landscape Potential If score is: **X** **4-6 = H** ___**1-3 = M** ___**< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	

Rating of Value If score is: **X** **2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number _____

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** 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 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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 Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – Contact WNHP/WDNR and go to SC 2.4 No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number _____

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**I**

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Wetland name or number _____

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland 3b Date of site visit: 8/31/2015

Rated by K. Biafora; B. Haddaway Trained by Ecology? X Yes ___No Date of training9/2014

HGM Class used for rating Riverine Wetland has multiple HGM classes?__Y X N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map NAIP 2009

OVERALL WETLAND CATEGORY I (based on functions X or special characteristics X)

1. Category of wetland based on FUNCTIONS

X **Category I** – Total score = 23 - 27

_____ **Category II** – Total score = 20 - 22

_____ **Category III** – Total score = 16 - 19

_____ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			TOTAL
	Circle the appropriate ratings									
Site Potential	H	M	L	H	M	L	H	M	L	
Landscape Potential	H	M	L	H	M	L	H	M	L	
Value	H	M	L	H	M	L	H	M	L	**TOTAL**
Score Based on Ratings	8			8			8			24

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Wetland name or number _____

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	3-1
Hydroperiods	H 1.2	3-1
Ponded depressions	R 1.1	3-1
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	3-1
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	3-1
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	3-2
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	3-2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	4
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	4

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number _____

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ____The wetland is on a slope (*slope can be very gradual*),
   ____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ____The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ____The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ____The overbank flooding occurs at least once every 2 years.

Wetland name or number _____

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit 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 of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number _____

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?	
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event: Depressions cover > $^3/_4$ area of wetland — points = 8 Depressions cover > ½ area of wetland — points = 4 Depressions present but cover < ½ area of wetland — points = 2 No depressions present — points = 0	8
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes) Trees or shrubs > $^2/_3$ area of the wetland — points = 8 Trees or shrubs > $^1/_3$ area of the wetland — points = 6 Herbaceous plants (> 6 in high) > $^2/_3$ area of the wetland — points = 6 Herbaceous plants (> 6 in high) > $^1/_3$ area of the wetland — points = 3 Trees, shrubs, and ungrazed herbaceous < $^1/_3$ area of the wetland — points = 0	6
Total for R 1 — Add the points in the boxes above	14

Rating of Site Potential If score is: **X 12-16 = H** **___6-11 = M** **___0-5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?	
R 2.1. Is the wetland within an incorporated city or within its UGA? Yes = 2 No = 0	0
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area? Yes = 1 No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years? Yes = 1 No = 0	1
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____ Yes = 1 No = 0	0
Total for R 2 — Add the points in the boxes above	2

Rating of Landscape Potential If score is: **___3-6 = H** **X 1 or 2 = M** **___0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?	
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi? Yes = 1 No = 0	1
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens? Yes = 1 No = 0	1
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*) Yes = 2 No = 0	2
Total for R 3 — Add the points in the boxes above	4

Rating of Value If score is: **X 2-4 = H** **___1 = M** **___0 = L** *Record the rating on the first page*

Wetland name or number _____

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?

R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).* If the ratio is more than 20 If the ratio is 10-20 If the ratio is 5-<10 If the ratio is 1-<5 If the ratio is < 1	points = 9 points = 6 points = 4 points = 2 points = 1	9
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).* Forest or shrub for > $^1/_3$ area OR emergent plants > $^2/_3$ area Forest or shrub for > $^1/_{10}$ area OR emergent plants > $^1/_3$ area Plants do not meet above criteria	points = 7 points = 4 points = 0	7
Total for R 4	Add the points in the boxes above	16

Rating of Site Potential If score is: **X 12-16 = H ___6-11 = M ___0-5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0 No = 1	0
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1 No = 0	1
R 5.3. Is the up-gradient stream or river controlled by dams?	Yes = 0 No = 1	0
Total for R 5	Add the points in the boxes above	1

Rating of Landscape Potential If score is: **___3 = H X 1 or 2 = M ___0 = L** *Record the rating on the first page*

R 6.0. Are the hydrologic functions provided by the site valuable to society?

R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site*. The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) Surface flooding problems are in a sub-basin farther down-gradient No flooding problems anywhere downstream	points = 2 points = 1 points = 0	2
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for R 6	Add the points in the boxes above	2

Rating of Value If score is: **X 2-4 = H ___1 = M ___0 = L** *Record the rating on the first page*

Wetland name or number _____

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

____	Aquatic bed	4 structures or more: points = 4
_X_	Emergent	3 structures: points = 2
_X_	Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
_X_	Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

____	Permanently flooded or inundated	4 or more types present: points = 3
____	Seasonally flooded or inundated	3 types present: points = 2
____	Occasionally flooded or inundated	2 types present: points = 1
____	Saturated only	1 type present: points = 0
____	Permanently flowing stream or river in, or adjacent to, the wetland	
____	Seasonally flowing stream in, or adjacent to, the wetland	
____	**Lake Fringe wetland**	**2 points**
_X_	**Freshwater tidal wetland**	**2 points**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

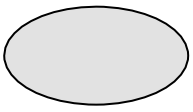
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

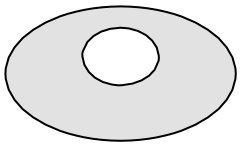
2

H 1.4. Interspersion of habitats

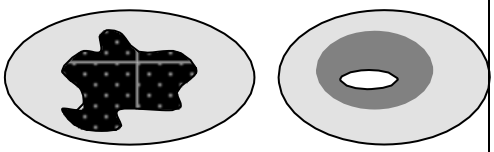
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

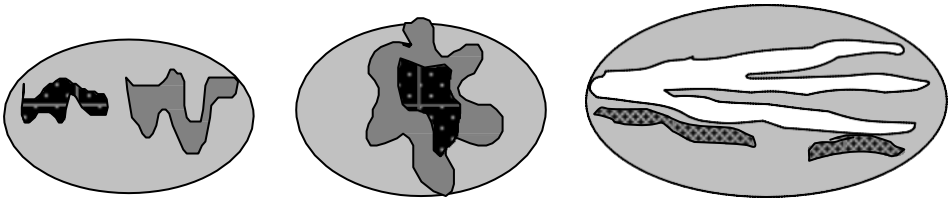


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



3

Wetland name or number _____

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). X Standing snags (dbh > 4 in) within the wetland X Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) X Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* X At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	5
Total for H 1 Add the points in the boxes above	14

Rating of Site Potential If score is: ___**15-18 = H** **X** **7-14 = M** ___**0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 50 **+** [(% moderate and low intensity land uses)/2] 25 **= 75** % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 50 **+** [(% moderate and low intensity land uses)/2]25 **= 75** % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	2
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	5

Rating of Landscape Potential If score is: **X** **4-6 = H** ___**1-3 = M** ___**< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	

Rating of Value If score is: **X** **2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number _____

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** 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 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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 Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – Contact WNHP/WDNR and go to SC 2.4 No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number _____

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**I**

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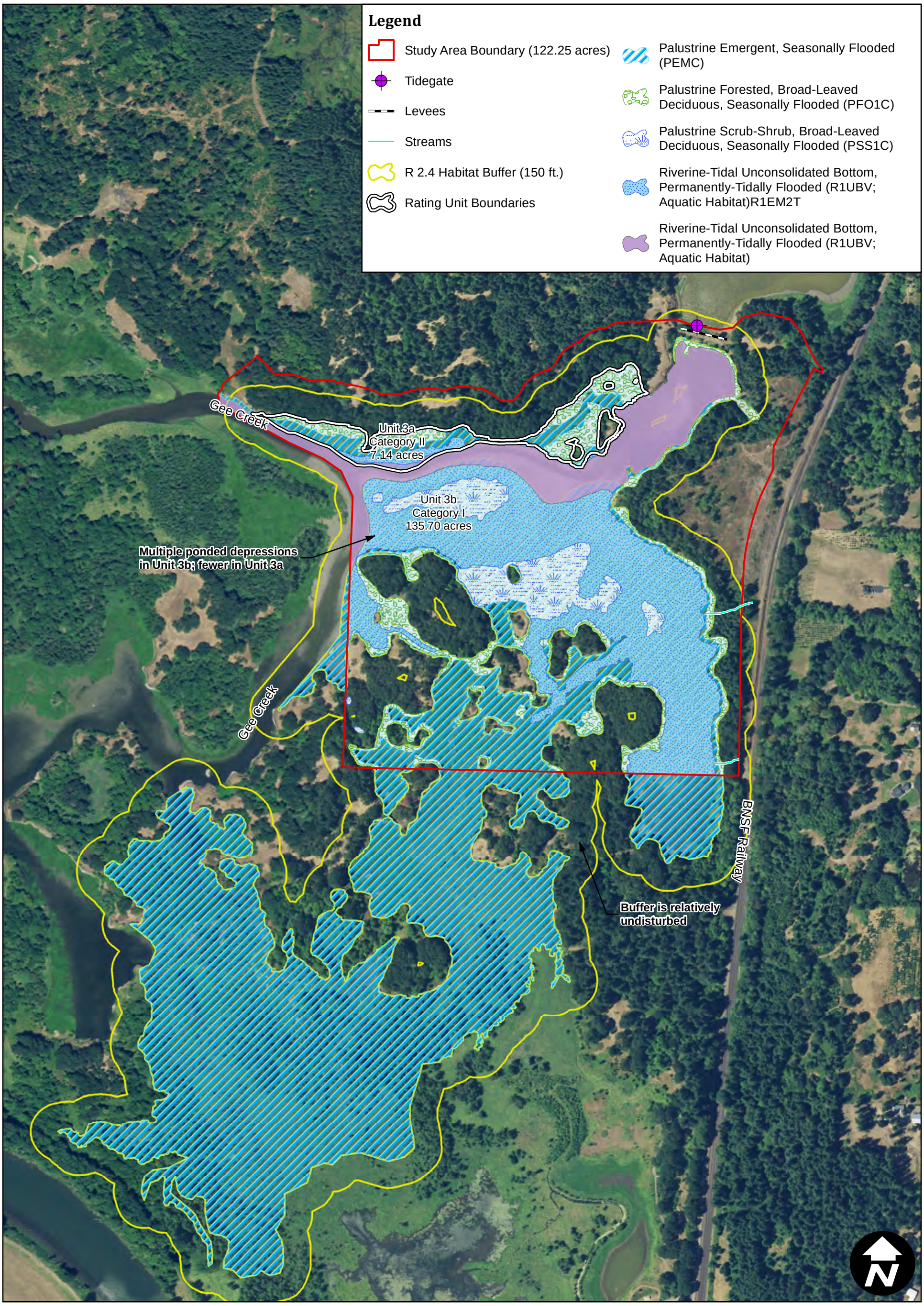


Date: 5/6/2016

Scale: 1 inch = 550 feet

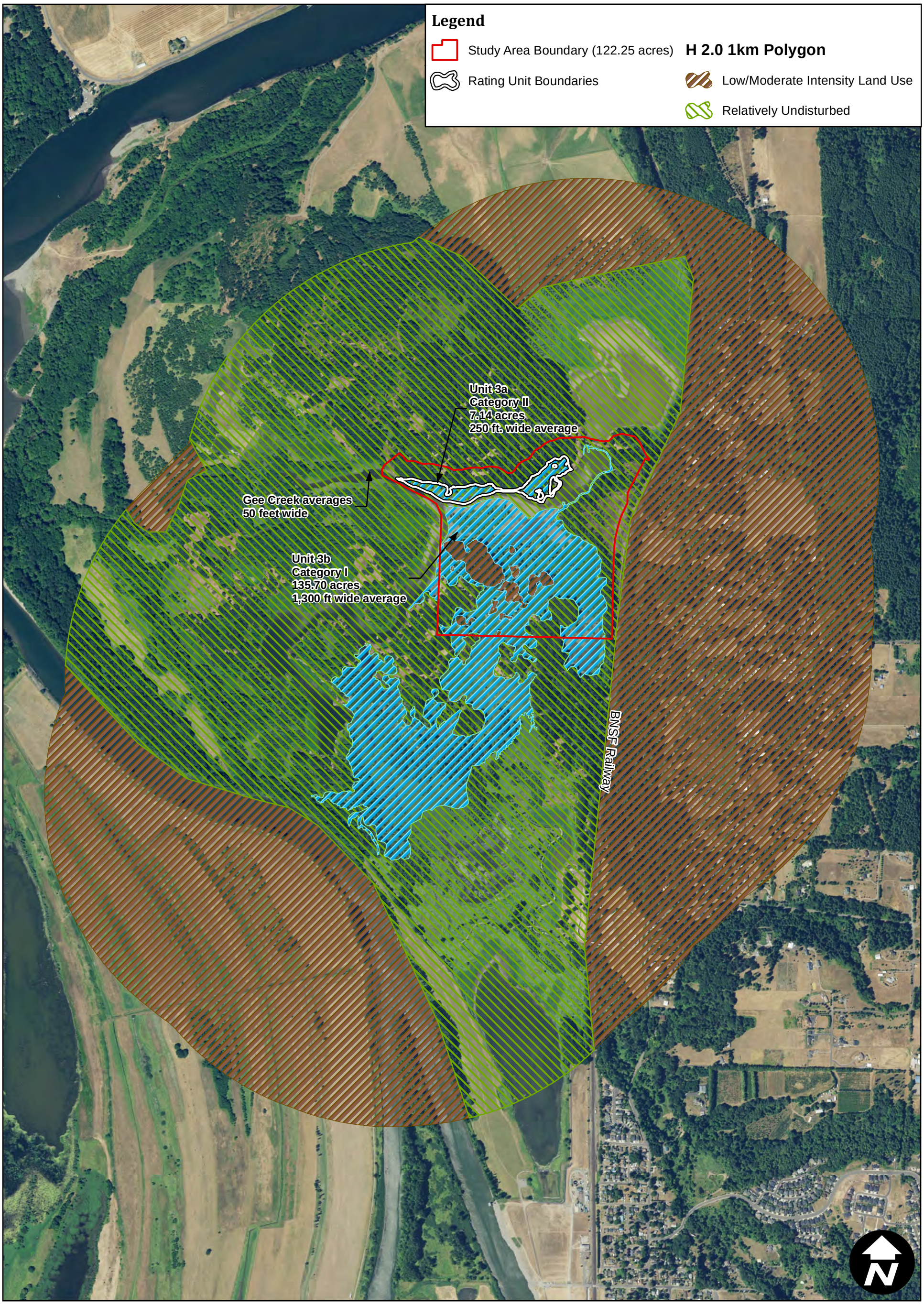
Aerial Source: USDA, NAIP, 2015

Appendix B: Figure 3-1. Wetland Rating Map

Plas Newydd Farm
Wetland Delineation Report

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet



Date: 5/6/2016

Scale: 1 inch = 550 feet

Aerial Source: USDA, NAIP, 2015

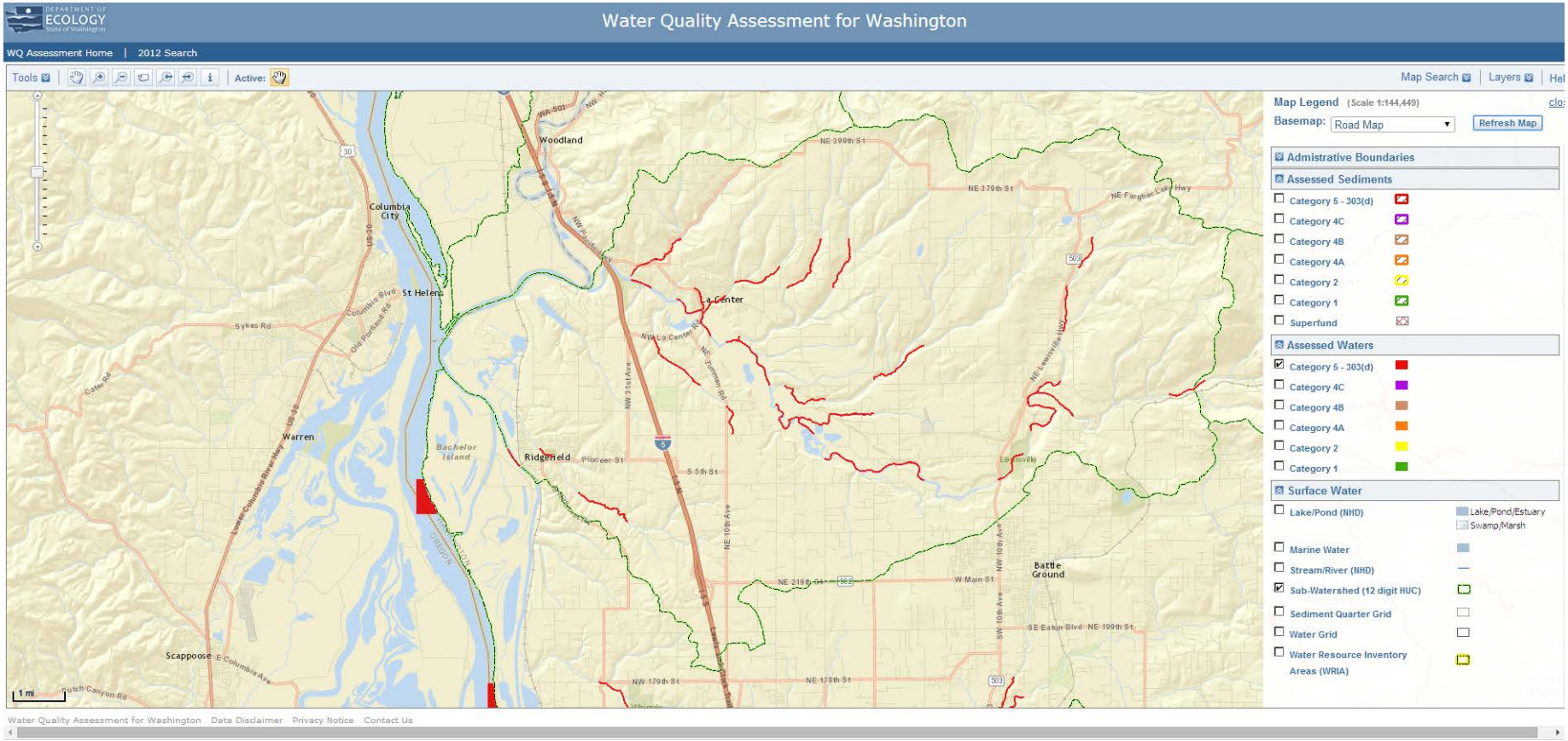
Appendix B: Figure 3-2. Wetland Rating Map

CASCADE ENVIRONMENTAL GROUP

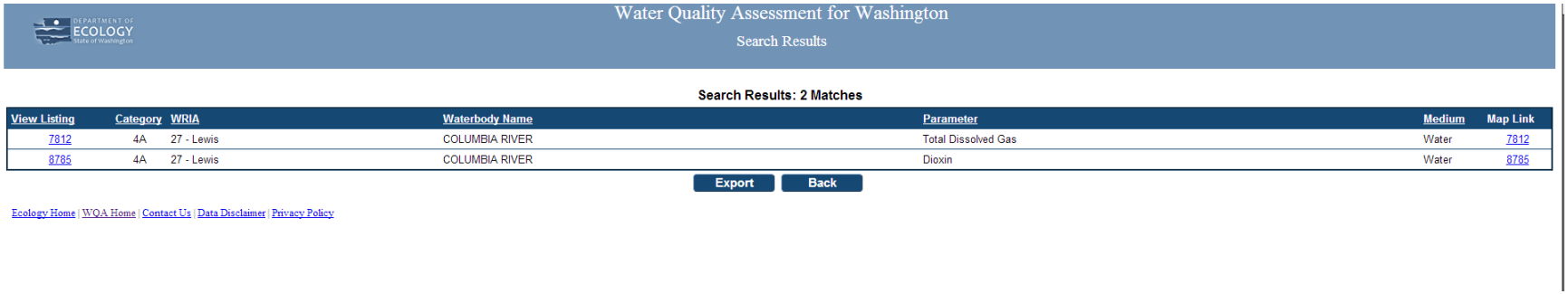
0 500 1,000 2,000 Feet

Plas Newydd Farm
Wetland Delineation Report

303d Map



TDML List



Appendix C: Site Photographs

Photo point 1. Photo 1. From the shoreline of the Lewis River looking 150° at reed canarygrass-colonial bentgrass palustrine emergent (PEM) wetland.

Photo point 1. Photo 2. From the shoreline of the Lewis River looking 295° toward water and boundary of PEM wetland and inundated non-persistent riverine (R1EMR) wetland.

Photo point 1. Photo 3. From the shoreline of the Lewis River looking 35° upstream at the boundary of PEM wetland and R1EMR wetland.

Photo point 2. Photo 1. From the northeastern section of the study site looking 220° at black cottonwood-Oregon ash palustrine forested (PFO) wetland with a slough sedge understory.

Photo point 2. Photo 2. From the northeastern section of the study site looking 50° at black cottonwood-Oregon ash PFO wetland with a reed canarygrass understory.

Photo point 3. Photo 1. From the intermittently connected portion of the slough associated with the Lewis River looking 10° toward reed canarygrass-slough sedge PEM wetland.

Photo point 3. Photo 2. From the slough looking 190° toward the mouth of the intermittent slough and reed canarygrass-slough sedge PEM wetland.

Photo point 4. Photo 1. From the mouth of the intermittent slough looking 270° at R1EMR wetland and the Columbia River.

Photo point 4. Photo 2. From the mouth of the intermittent slough looking 190° at R1EMR wetland.

Photo point 4. Photo 3. From the mouth of the intermittent slough looking 0° at R1EMR wetland.

Photo point 4. Photo 4. From the mouth of the intermittent slough looking 90° up the channel at bentgrass- dominated PEM wetland.

Photo point 5. Photo 1. From the eastern bank of the slough looking 310 ° at reed canarygrass and Himalayan blackberry vegetation along the banks.

Photo point 6. Photo 1. From a sandy deposit in the northwestern section of the study site looking 80° toward bentgrass-dominated PEM wetland with Himalayan blackberry.

Photo point 7. Photo 1. From near the shore of the Lewis River in the northwestern portion of the study site looking 210° at bentgrass-dominated PEM wetland.

Photo point 8. Photo 1. From below ordinary high water mark looking 100° at mixed willow-reed canarygrass palustrine scrub-shrub (PSS) wetland.

Photo point 8. Photo 2. From below ordinary high water mark looking 205° at mixed willow-reed canarygrass PSS wetland.

Photo point 8. Photo 3. From below ordinary high water mark looking 100° at willow-creeping bentgrass PSS wetland.

Photo point 9. Photo 1. From upland ridge formation in the northern section of the study site looking 325° at black cottonwood-Oregon ash upland forest with snowberry and blackberry.

Photo point 9. Photo 2. From upland ridge formation in the northern section of the study site looking 120° at PFO wetland downslope and Data Plot 8.

Photo point 10. Photo 1. From the north bank of the disconnected slough looking 165° at redosier dogwood vegetation and open water of the slough.

Photo point 11. Photo 1. From the northwestern section of the study site looking 55° at PFO wetland with a reed canarygrass understory.

Photo point 11. Photo 2. From the northwestern section of the study site looking 140° at PFO wetland with a reed canarygrass understory.

Photo point 12. Photo 1. From the shoreline of the Lewis River in the northern section of the study site looking 205° upstream at the slough as a heavy rain falls.

Photo point 12. Photo 2. From the shoreline of the Lewis River in the northern section of the study site looking 25° at the inlet of the slough.

Photo point 13. Photo 1. From near the northeastern boundary of the study site looking 240° at PFO wetland with a reed canarygrass understory.

Photo point 13. Photo 2. From near the northeastern boundary of the study site looking 25° at PFO wetland with a reed canarygrass understory.

Photo point 14. Photo 1. From the northern section of the study site looking 200° at black cottonwood-Oregon ash mosaic forest with a shrubby understory including snowberry and blackberry.

Photo point 14. Photo 2. From the northern section of the study site looking 30° at black cottonwood-Oregon ash mosaic forest with a shrubby understory including snowberry and blackberry.

Photo point 15. Photo 1. From the northeastern extent of the study site looking 180° at black cottonwood-Oregon ash upland forest with a dense stinging nettle understory.

Photo point 15. Photo 2. From the northeastern extent of the study site looking 255° at black cottonwood-Oregon ash upland forest with a dense stinging nettle understory.

Photo point 16. Photo 1. From the southeastern section of the study site looking 145° at a slough backwater and dense, shrubby vegetation within the PFO wetland.

Photo point 16. Photo 2. From the southeastern section of the study site looking 255° at the dense, shrubby vegetation of the PFO wetland.

Photo Date: April 23 and 24, 2014

Photo point 17. Photo 1. From the levee along the southeastern boundary of the study site looking 340° at an impounded area outside of the levee.

Photo point 18. Photo 1. From the levee north of Photo Point 17 looking 350° at an impounded area outside of the levee.

Photo Date: May 13, 2014

Photo point 19. Photo 1. From the south end of Long Meadow looking 0° at meadow foxtail-dominated PEM wetland.

Photo point 19. Photo 2. From the south end of Long Meadow looking 45° at meadow foxtail-dominated PEM wetland. Pacific willow-reed canarygrass PSS wetland in background.

Photo point 19. Photo 3. From the south end of Long Meadow looking 90° at transition between PEM wetland and mosaic pastureland (visible as topographic break). Upland forest is in background.

Photo point 20. Photo 1. From the ridge in the central portion of Long Meadow looking 0° at the transition of meadow foxtail PEM wetland (right) to mosaic pasture (center) to upland pasture (left).

Photo point 20. Photo 2. From the ridge in the central portion of Long Meadow looking 90° at mosaic pasture grading down to PEM wetland and Pacific willow PSS wetland.

Photo point 20. Photo 3. From the ridge in the central portion of Long Meadow looking 180° at mosaic pasture grading down to PEM wetland and Pacific willow PSS wetland.

Photo point 20. Photo 4. From the ridge in the central portion of Long Meadow looking 270° at upland pasture.

Photo point 21. Photo 1. From near the shoreline of the Columbia River looking 0° at upland forest with cottonwood and Himalayan blackberry.

Photo point 21. Photo 2. From near the shoreline of the Columbia River looking 90° at upland forest.

Photo point 21. Photo 3. From near the shoreline of the Columbia River looking 180° at upland forest.

Photo point 21. Photo 4. From near the shoreline of the Columbia River looking 270° beyond upland forest to R1EMR wetland and the waters of the Columbia.

Photo point 22. Photo 1. From the banks of Gee Creek looking 0° with mosaic pastureland along bank ridges and meadow foxtail PEM wetland beyond. Upland forest is in background.

Photo point 22. Photo 2. From the banks of Gee Creek looking 90° at the channel and riparian vegetation.

Photo point 22. Photo 3. From the banks of Gee Creek looking 270° at meadow foxtail PEM wetland with Oregon ash PFO wetland in background.

Photo point 23. Photo 1. From the northeastern section of the study site looking 110° at upland forest.

Photo point 23. Photo 2. From the northeastern section of the study site looking 225° at upland forest.

Photo point 23. Photo 3. From the northeastern section of the study site looking 150° at upland forest.

Photo point 24. Photo 1. From the shoreline of the Lewis River looking 240° at a small area of R1EMR wetland.

Photo point 24. Photo 2. From the shoreline of the Lewis River looking 240° at a reed canarygrass understory of PFO wetland.

Photo point 25. Photo 1. From the northeastern section of the study site looking 330° at upland forest.

Photo point 26. Photo 1. From the west bank of the slough looking 105° at dense dogwood and reed canarygrass vegetation and open water.

Photo point 27. Photo 1. From the northeastern section of the study site looking 350° at a depressional area with standing water within PFO wetland.

Photo point 28. Photo 1. From the north end of Long Meadow looking 245° at Pacific willow-reed canarygrass PSS wetland.

Photo point 28. Photo 2. From the north end of Long Meadow looking 170° at Pacific willow-reed canarygrass PSS wetland.

Photo point 28. Photo 3. From the north end of Long Meadow looking 60° at Pacific willow-reed canarygrass PSS wetland.

Photo point 29. Photo 1. From the central section of Long Meadow looking 200° at mosaic pastureland vegetation.

Photo point 29. Photo 2. From the central section of Long Meadow looking 10° at mosaic pastureland vegetation.

Photo point 30. Photo 1. From upland ridge in the southwestern section of Long Meadow looking 40° at upland pasture grading into PEM and PSS wetland.

Photo point 30. Photo 2. From upland ridge in the southwestern section of Long Meadow looking 0° at upland pasture grass vegetation along ridge.

Photo point 30. Photo 3. From upland ridge in the southwestern section of Long Meadow looking 285° at upland pasture grading into PEM and PFO wetland.

Photo point 30. Photo 4. From upland ridge in the southwestern section of Long Meadow looking 170° at upland pasture grading into mosaic pasture along ridge.

Photo point 31. Photo 1. From the north bank of Gee Creek looking 150° at PFO wetland continuing beyond the study site boundary.

Photo point 31. Photo 2. From the north bank of Gee Creek looking 75° at the south bank and PFO wetland beyond.

Photo point 31. Photo 3. From the north bank of Gee Creek looking 10° at PFO wetland.

Photo point 32. Photo 1. From the southern section of the study site looking 340° at PEM wetland and standing water.

Photo point 32. Photo 2. From the southern section of the study site looking 240° at PEM and PSS wetland.

Photo point 33. Photo 1. From the south-central section of the study site looking 0° at PSS wetland and standing water.

Photo point 33. Photo 2. From the south-central section of the study site looking 175° at PSS wetland.

Photo point 33. Photo 3. From the south-central section of the study site looking 70° at PSS wetland.

Photo point 34. Photo 1. From near the convergence of the Lewis and Columbia Rivers looking 285° at mixed willow-creeping Jenny PSS wetland.

Photo point 35. Photo 1. From water control structure #1 at the west end of the rock-fill dam looking 340° at impounded water and water pepper and marsh seedbox wetland vegetation.

Photo point 35. Photo 2. From water control structure #1 at the west end of the rock-fill dam looking 140° at impounded water and reed canarygrass-creeping spikerush PEM wetland.

Photo point 35. Photo 3. From water control structure #1 at the west end of the rock-fill dam looking 65° along the dam.

Photo point 36. Photo 1. From the east end of the rock-fill dam looking 105° at reed canarygrass-creeping spikerush PEM wetland.

Photo point 36. Photo 2. From the east end of the rock-fill dam looking 300° at reed canarygrass-creeping spikerush PEM wetland.

Photo point 37. Photo 1. From water control structure #2 at the east end of the rock-fill dam looking 340° at impounded water and water pepper and marsh seedbox wetland vegetation.

Photo point 37. Photo 2. From water control structure #2 at the east end of the rock-fill dam looking 165° at impounded water and water pepper and marsh seedbox wetland vegetation.

Photo point 38. Photo 1. From the southeastern section of the study site looking 210° at Pacific willow-reed canarygrass PSS wetland.

Photo point 38. Photo 2. From the southeastern section of the study site looking 55° at Oregon ash-reed canarygrass PFO wetland.

Photo point 39. Photo 1. From the southeastern section of the study site looking 280° at Oregon oak-Indian plum-Himalayan blackberry upland forest.

Photo point 39. Photo 2. From the southeastern section of the study site looking 200° at Oregon ash-Indian plum-Himalayan blackberry upland forest.

Photo point 40. Photo 1. From the southeastern section of the study site looking 0° at open-canopy Oregon ash-reed canarygrass PFO wetland.

Photo point 40. Photo 2. From the southeastern section of the study site looking 265° at open-canopy Oregon ash-reed canarygrass PFO wetland.

Photo point 40. Photo 3. From the southeastern section of the study site looking 160° at open-canopy Oregon ash-reed canarygrass PFO wetland.

Photo point 41. Photo 1. From the southeastern section of the study site looking 225° at closed-canopy Oregon ash PFO wetland.

Photo point 41. Photo 2. From the southeastern section of the study site looking 225° at closed-canopy Oregon ash PFO wetland.

Photo point 42. Photo 1. From the southeastern section of the study site looking 80° at Gee Creek.

Photographs continued on next page.

Photo point 43. Photo 1. From the southeastern end of the study site looking 120° at culvert outfall at the end of the waterfowl ponds draining into Gee Creek.

Photo point 44. Photo 1. From the southeastern section of the study site looking 205° at wapato and reed canarygrass vegetated wetland along Gee Creek.

Photo point 44. Photo 2. From the southeastern section of the study site looking 75° at wapato and reed canarygrass vegetated wetland along Gee Creek.

Photographs continued on next page.

Photo point 1. Photo 1. From the ditch running east-west along the southern end of Upper Front Field looking 85° upstream.

Photo point 1. Photo 2. From the ditch running east-west along the southern end of Upper Front Field looking 240° downstream.

Photo point 1. Photo 3. From the ditch running along the southern end of Upper Front Field looking 325° at colonial bentrgrass-tall fescue-velvetgrass upland pasture.

Photo point 1. Photo 4. From the ditch running along the southern end of Upper Front Field looking 325° at tall fescue-velvetgrass palustrine emergent (PEM) wetland.

Photo point 2. Photo 1. From the central section of Upper Front Field looking 160° at tall fescue-velvetgrass PEM wetland.

Photo point 2. Photo 2. From the central section of Upper Front Field looking 250° at colonial bentrgrass-tall fescue-velvetgrass upland pasture.

Photo point 2. Photo 3. From the central section of Upper Front Field looking 350° toward Lewis River levee and colonial bentrgrass-tall fescue-velvetgrass upland pasture.

Photo point 2. Photo 4. From the central section of Upper Front Field looking 70° toward the eastern study area boundary and colonial bentrgrass-tall fescue-velvetgrass upland pasture.

Photo point 3. Photo 1. From the crest of the Lewis River levee looking 175° at Upper Front Field.

Photo point 3. Photo 2. From the crest of the Lewis River levee looking 275° down gravel access road.

Photo point 3. Photo 2. From the crest of the Lewis River levee looking 340° at the Lewis River.

Photo point 3. Photo 4. From the crest of the Lewis River levee looking 80° up gravel access road.

Photo point 4. Photo 1. From the southwestern section of Upper Front Field looking 160° at tall fescue-velvetrgrass PEM wetland.

Photo point 4. Photo 2. From the southwestern section of Upper Front Field looking 80° at colonial bentgrass-tall fescue-velvetrgrass upland pasture.

Photo point 4. Photo 3. From the southwestern section of Upper Front Field looking 340° at colonial bentgrass-tall fescue-velvetrgrass upland pasture.

Photo point 4. Photo 4. From the southwestern section of Upper Front Field looking 240° at tall fescue-velvetrgrass PEM wetland.

Photo point 5. Photo 1. From the southeastern section of Lower Front Field looking 240° at colonial bentrgrass-velvetgrass PEM wetland.

Photo point 5. Photo 2. From the southeastern section of Lower Front Field looking 350° toward Lewis River levee and colonial bentrgrass-velvetgrass PEM wetland.

Photo point 5. Photo 2. From the southeastern section of Lower Front Field looking 130° at colonial bentrgrass-velvetgrass PEM wetland.

Photographs continued on next page.

Photo Date: June 16, 2014

Photo point 6. Photo 1. From the northern section Lower Front Field looking 150 ° at colonial bentrgrass-velvetgrass PEM wetland.

Photo point 6. Photo 2. From the northern section Lower Front Field looking 70 ° at colonial bentrgrass-tall fescue-velvetgrass upland pasture.

Photo Date: June 26, 2014

Photo point 7. Photo 1. From the top of the ditch running between Lower Front Field and Petty Field looking at reed canarygrass PEM wetland.

Photo point 8. Photo 1. From the southwestern section of Mid Field looking 165° at common rush-velvetgrass PEM wetland.

Photo point 8. Photo 2. From the southwestern section of Mid Field looking 245° at common rush-velvetgrass PEM wetland.

Photo point 8. Photo 3. From the southwestern section of Mid Field looking 350° at colonial bentgrass-perennial ryegrass upland pasture.

Photo point 8. Photo 4. From the southwestern section of Mid Field looking 80° at common rush-velvetgrass PEM wetland.

Photo point 9. Photo 1. From northeastern section of Mid Field looking 160° at colonial bentgrass-velvetgrass PEM wetland.

Photo point 9. Photo 2. From northeastern section of Mid Field looking 250° colonial bentgrass-perennial ryegrass upland pasture.

Photo point 9. Photo 3. From northeastern section of Mid Field looking 340° at boundary of colonial bentgrass-velvetgrass PEM and Pacific willow-reed canarygrass palustrine scrub-shrub (PSS) wetland.

Photo point 9. Photo 4. From northeastern section of Mid Field looking 60° at Pacific willow-reed canarygrass PSS wetland.

Photo point 10. Photo 1. From the southwestern section of Petty Field looking 135° toward black cottonwood-Oregon ash palustrine forested (PFO) wetland.

Photo point 10. Photo 2. From the southwestern section of Petty Field looking 220° toward colonial bentgrass-velvetgrass PEM and black cottonwood-Oregon PFO wetland.

Photo point 10. Photo 3. From the southwestern section of Petty Field looking 290° at upland/wetland boundary and Lewis River levee.

Photo point 10. Photo 4. From the southwestern section of Petty Field looking 450° at colonial bentgrass-velvetgrass PEM wetland

Photo point 11. Photo 1. From the southwestern study area boundary looking 10° at Pacific willow-reed canarygrass PSS wetland.

Photo point 12. Photo 1. From the bigleaf maple-Douglas fir-hazelnut upland forest along the southwestern study area boundary looking 70° at Lancaster Lake.

Photo point 12. Photo 2. From the southwestern study area boundary looking 320° at bigleaf maple-Douglas fir-hazelnut upland forest.

Photo point 12. Photo 3. From the southwestern study area boundary looking 210° at bigleaf maple-Douglas fir-hazelnut upland forest.

Photographs continued on next page.

Photo point 13. Photo 1. From the ditch running along the eastern study area boundary looking 125° downstream and at reed canarygrass PEM wetland.

Photo point 13. Photo 2. From the ditch running along the eastern study area boundary looking 0° upstream and at reed canarygrass PEM wetland.

Photo point 13. Photo 3. From the ditch running along the eastern study area boundary looking 225 ° at common rush-veletgrass PEM wetland.

Photo point 14. Photo 1. From the southern section of Lake Field looking 140 ° at Pacific willow-reed canarygrass PSS wetland.

Photo point 15. Photo 1. From the southern section of Lake Field looking 65° at fenceline running through PSS wetland.

Photo point 15. Photo 2. From the southern section of Lake Field looking 220° at fenceline running through PSS wetland.

Photo point 16. Photo 2. From the confluence of 2 ditches at the western boundary of Lake Field looking 185°at semi-permanently flooded pool.

Photo point 16. Photo 2. From the western boundary of Lake Field looking 325°at reed canarygrass PEM wetland in south Willow Field.

Photo point 17. Photo 1. From north of Lancaster Lake looking 155°at reed canarygrass-smartweed PEM wetland. Note surface water and occasional wapato.

Photo point 17. Photo 2. From north of Lancaster Lake looking 85°at reed canarygrass-smartweed PEM wetland.

Photo point 17. Photo 2. From north of Lancaster Lake looking 230°at reed canarygrass-smartweed PEM wetland.

Photo point 18. Photo 1. From the ditch draining directly into Lancaster Lake looking 290° upstream at reed canarygrass PEM and palustrine aquatic bed (PAB) wetland.

Photo point 18. Photo 2. From the ditch draining directly into Lancaster Lake looking 140° downstream at reed canarygrass PEM and PAB wetland.

Photo point 19. Photo 1. From a small upland mound in Willow Field looking 155° at common rush-reed canarygrass PEM wetland.

Photo point 19. Photo 2. From a small upland mound in Willow Field looking 245° at common rush-reed canarygrass PEM wetland.

Photo point 19. Photo 3. From a small upland mound in Willow Field looking 335° at colonial bentgrass-tall fescue-velvetgrass upland pasture.

Photo point 19. Photo 4. From a small upland mound in Willow Field looking 80° at colonial bentgrass-velvetgrass PEM wetland.

Photo point 20. Photo 1. From the levee at Gee Creek on the south end of Lancaster Lake looking 15° across the lake.

Photo point 20. Photo 2. From the levee at Gee Creek on the south end of Lancaster Lake looking 190° at Gee Creek south of the study area boundaries.

Photo point 1. Photo 1. From Wetland 4 in the southeastern section of the Study Area looking 90° at extensive wapato beds.

Photo point 1. Photo 2. From Wetland 4 the southeastern section of the Study Area looking 340° at uplands consisting of oak-dominated basalt rock outcrop.

Photo point 2. Photo 1. From the southeaster section of the Study Area looking 0° at oak-dominated basalt uplands.

Photo point 2. Photo 2. From the southeaster section of the Study Area looking 170° at oak-dominated basalt uplands.

Photo point 3. Photo 1. From the Wetland 4 in the southeastern section of the Study Area looking 45° at reed canarygrass vegetation.

Photo point 3. Photo 2. From Wetland 4 in the southeastern section of the Study Area looking 320° at flat wapato beds grading abruptly to oak-dominated basalt outcrop.

Photo point 3. Photo 3. From the Wetland 4 in the southeastern section of the Study Area looking 240° at dense wapato vegetation.

Photo point 3. Photo 4. From the Wetland 4 in the southeastern section of the Study Area looking 130° at the sharp transition between wetland and upland.

Photo point 4. Photo 1. From Wetland 4 in the central section of the Study Area looking 355° at extensive wapato beds fringed with reed canarygrass.

Photo point 4. Photo 2. From Wetland 4 looking 275° along upland/wetland boundary and a series of basalt outcrops protruding into the wetland.

Photo point 5. Photo 1. From atop a basalt outcrop in the south-central section of the Study Area looking 65° at extensive wapato beds of Wetland 4.

Photo point 6. Photo 1. From atop a basalt outcrop in the south-central section of the Study Area looking 205° at dense reed canarygrass vegetation in Wetland 4.

Photo point 7. Photo 1. From atop a basalt outcrop in the southern section of the Study Area looking 205° toward southern boundary and dense reed canarygrass vegetation in Wetland 4.

Photo point 8. Photo 1. From the northeastern end of the Study Area looking 80° at Gee Creek and upland conifer forest beyond.

Photo point 8. Photo 2. From the northeastern end of the Study Area looking 175° at Gee Creek and upland conifer forest beyond.

Photo point 8. Photo 3. From the northeastern end of the Study Area looking 240° at Oregon ash-forested wetland fringe along Gee Creek (Wetland 3).

Photo point 9. Photo 1. From Wetland 3 at the north end of the Study Area looking 285° at reed canarygrass and wapato wetland fringe along Gee Creek.

Photo point 9. Photo 2. From Wetland 3 at the north end of the Study Area looking 250° across Gee Creek at scrub-shrub wetland (Wetland 4) along the opposite bank.

Photo point 9. Photo 3. From Wetland 3 at the north end of the Study Area looking 200° across Gee Creek at scrub-shrub wetland (Wetland 4) along the opposite bank.

Photo point 9. Photo 4. From Wetland 3 at the north end of the Study Area looking 170° across Gee Creek at wapato beds (Wetland 4) along the opposite bank.

Photo point 10. Photo 1. From Wetland 4 in the northeastern section of the Study Area looking 300° across Gee Creek during high water.

Photo point 10. Photo 2. From Wetland 4 in the northeastern section of the Study Area looking 230° across Gee Creek at scrub-shrub wetland at opposite bank.

Photo point 10. Photo 3. From Wetland 4 in the northeastern section of the Study Area looking 160° across Gee Creek during high water.

Photo point 10. Photo 4. From Wetland 4 in the northeastern section of the Study Area looking 30° at hunter's blind perched on basalt outcrop upland.

Photo point 11. Photo 1. From Stream 1 along the eastern boundary of the Study Area looking 75° upstream.

Photo point 11. Photo 2. From Stream 1 along the eastern boundary of the Study Area looking 240° downstream where it flows into Wetland 4.

Photo point 12. Photo 1. From Stream 2 at the southeastern corner of the Study Area looking 90° upstream.

Photographs continue on next page.

Photo point 13. Photo 1. From Wetland 4 in the south end of the Study Area looking 345° at reed canarygrass vegetation during high water.

Photo point 13. Photo 2. From Wetland 4 in the south end of the Study Area looking 65° at reed canarygrass vegetation during high water

Photo point 13. Photo 3. From Wetland 4 in the south end of the Study Area looking 290° at reed canarygrass vegetation during high water

Photo point 13. Photo 4. From Wetland 4 in the south end of the Study Area looking 255° at reed canarygrass vegetation during high water

Photo point 14. Photo 1. From the southwestern corner of the Study Area looking 110° at depressional wetland area dominated by reed canarygrass.

Photo point 14. Photo 2. From the southwestern corner of the Study Area looking 90° at depressional wetland area.

Photo point 15. Photo 1. From Wetland 4 in the west-central section of the Study Area looking 295° at backwater of Gee Creek during high water.

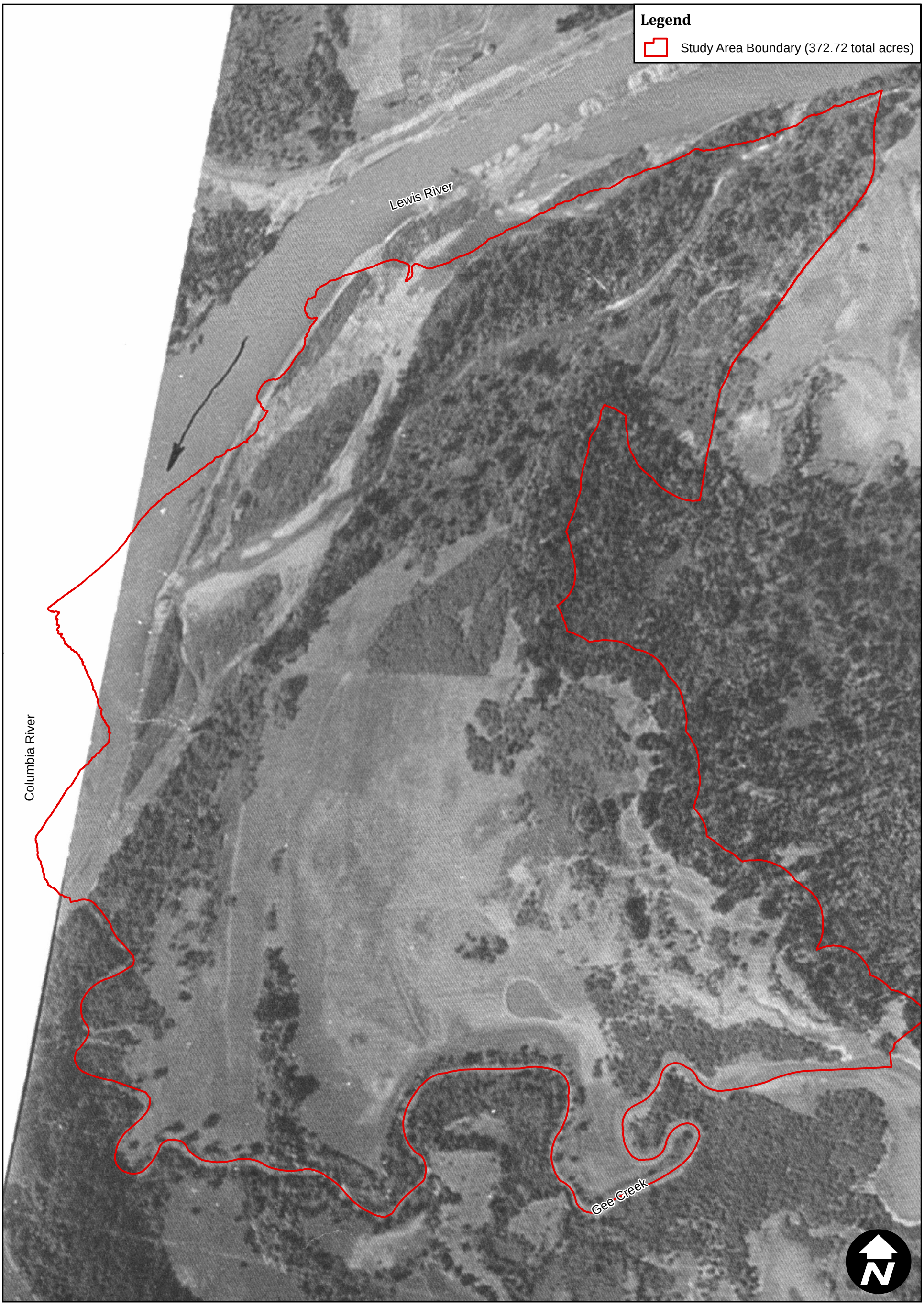
Photo point 15. Photo 2. From Wetland 4 in the west-central section of the Study Area looking 90° at backwater of Gee Creek during high water.

Photo point 16. Photo 1. From a basalt outcrop in the west-central section of the Study Area looking 75° at Wetland 4 inundated by high waters of Gee Creek.

Photo point 16. Photo 2. From a basalt outcrop in the west-central section of the Study Area looking 30° at Wetland 4 and another basalt outcrop

Photo point 16. Photo 3. From a basalt outcrop in the west-central section of the Study Area looking 355° at Wetland 4 inundated by high waters of Gee Creek

Appendix D: Historical Aerial Photographs



Date: 5/6/2016

Scale: 1 inch = 500 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1929: Lewis River and Gee Creek Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report

Date: 5/6/2016

Scale: 1 inch = 500 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1936: Lewis River and Gee Creek Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report

Date: 5/6/2016

Scale: 1 inch = 500 feet

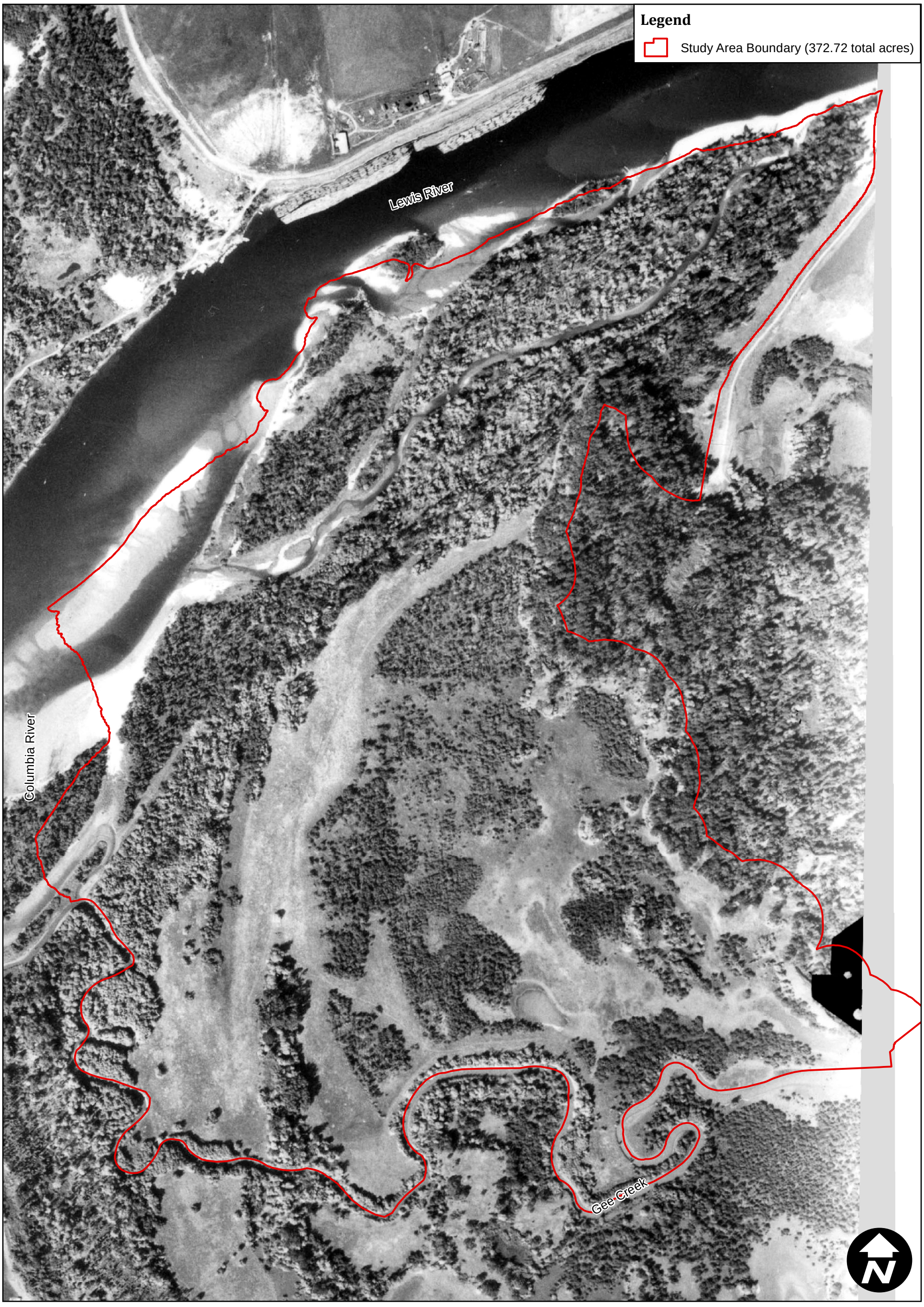
Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1951: Lewis River and Gee Creek Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report



Date: 5/6/2016

Scale: 1 inch = 500 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1963: Lewis River and Gee Creek Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report

Date: 5/6/2016

Scale: 1 inch = 500 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1969: Lewis River and Gee Creek Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report

Date: 5/6/2016

Scale: 1 inch = 500 feet

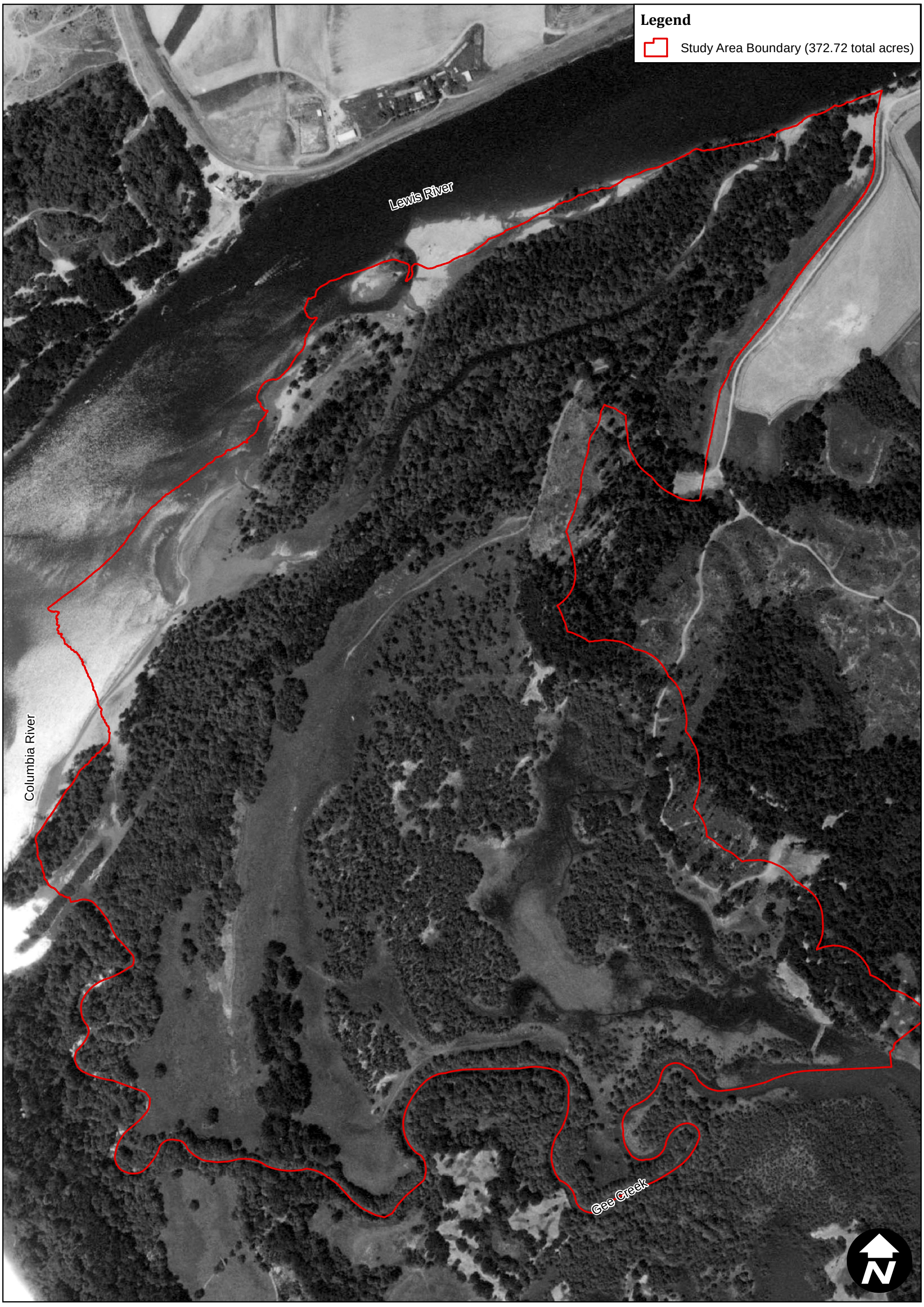
Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1977: Lewis River and Gee Creek Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report



Date: 5/6/2016

Scale: 1 inch = 500 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1986: Lewis River and Gee Creek Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report

Date: 5/6/2016

Scale: 1 inch = 500 feet

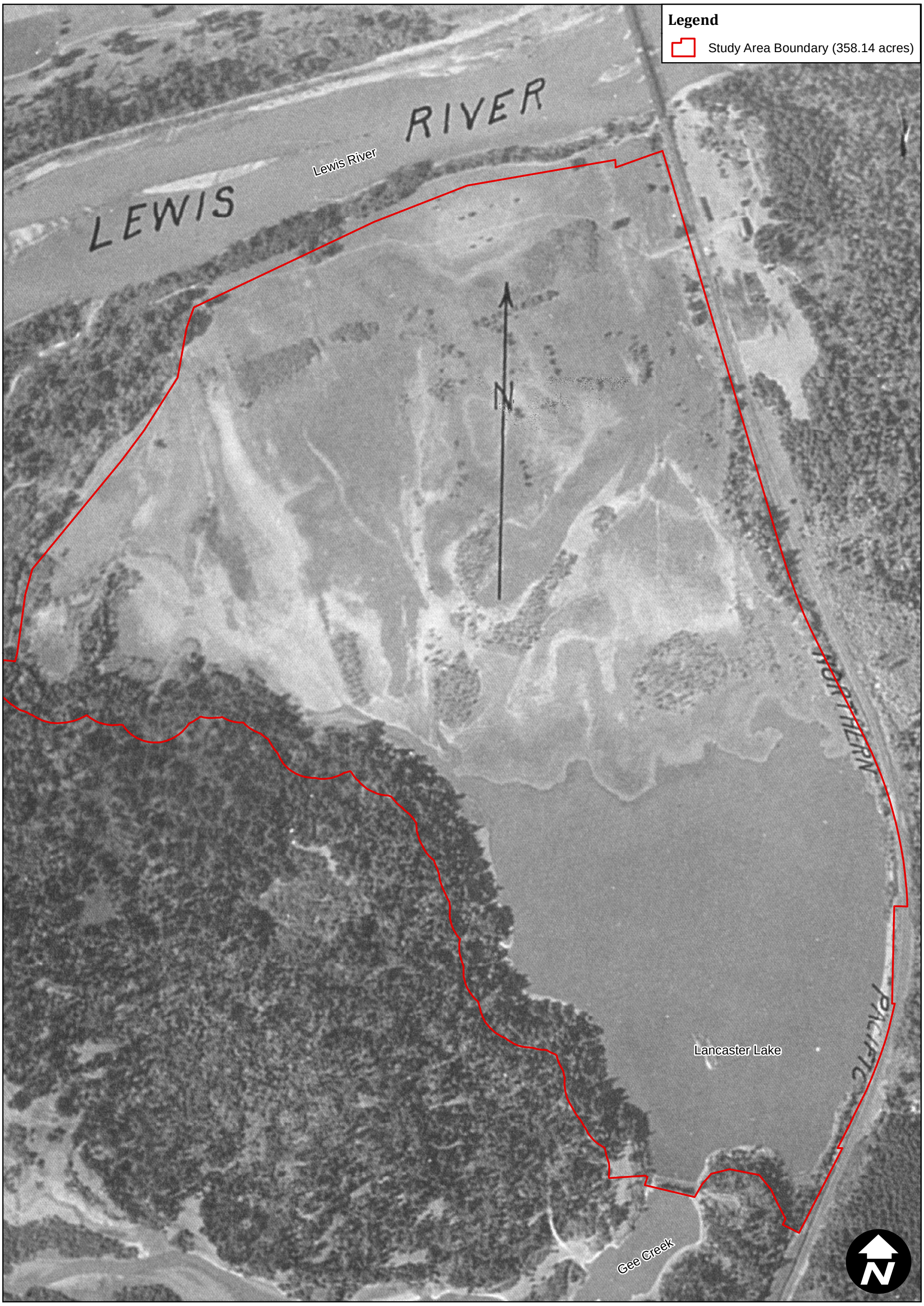
Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1996: Lewis River and Gee Creek Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report



Date: 5/6/2016

Scale: 1 inch = 500 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1929: Farm Fields and Lancaster Lake Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report

Legend

Study Area Boundary (358.14 acres)

Lewis River

Lancaster Lake

Gee Creek

N

Date: 5/6/2016

Scale: 1 inch = 500 feet

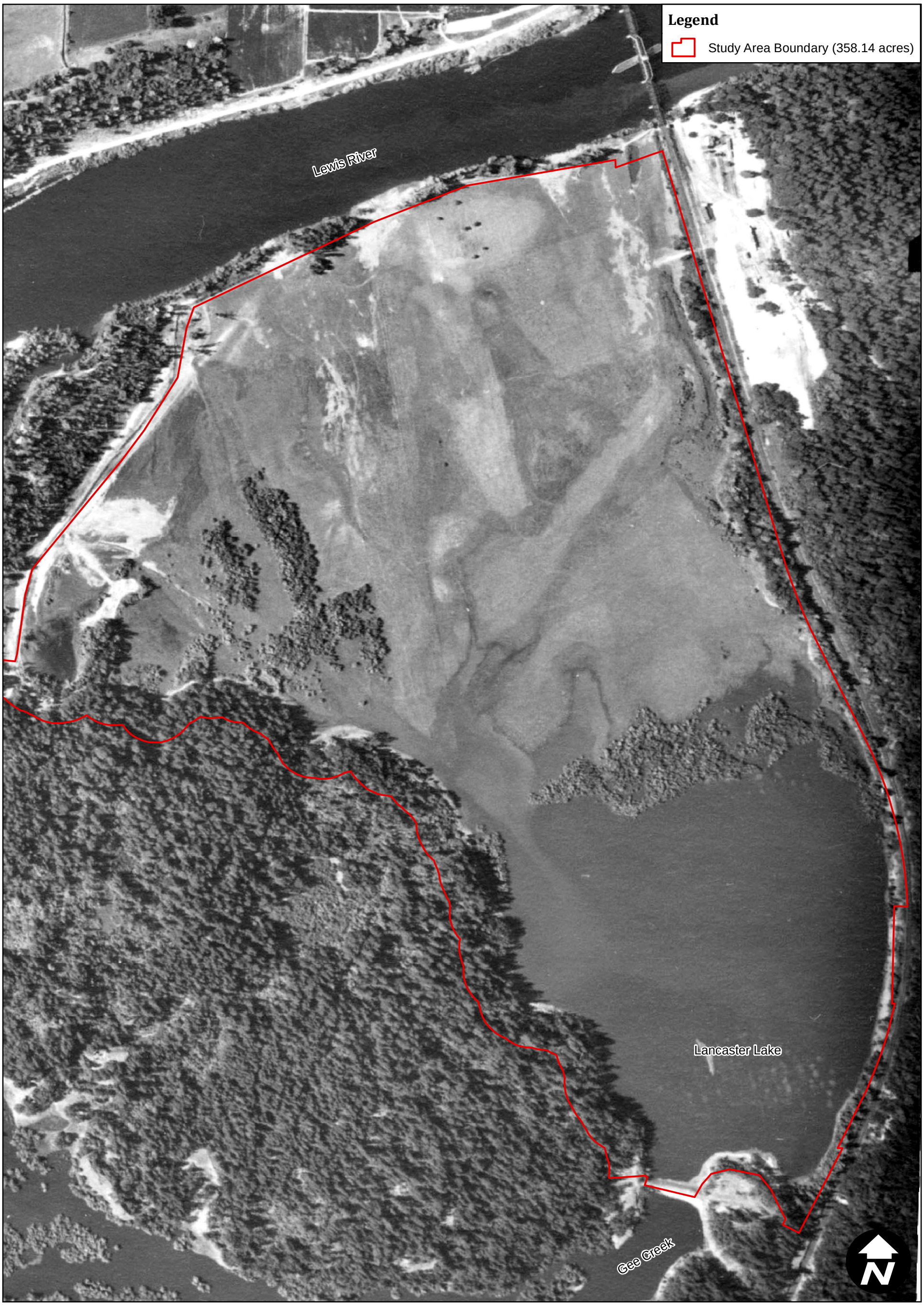
Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1936: Farm Fields and Lancaster Lake Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report



Date: 5/6/2016

Scale: 1 inch = 500 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1951: Farm Fields and Lancaster Lake Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report

Legend

Study Area Boundary (358.14 acres)

Lewis River

Lancaster Lake

Gee Creek

N

Date: 5/6/2016

Scale: 1 inch = 500 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1969: Farm Fields and Lancaster Lake Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report

Legend

Study Area Boundary (358.14 acres)

Lewis River

Lancaster Lake

Gee Creek

N

Date: 5/6/2016

Scale: 1 inch = 500 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1977: Farm Fields and Lancaster Lake Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report

Legend

Study Area Boundary (358.14 acres)

Lewis River

Lancaster Lake

Gee Creek

N

Date: 5/6/2016

Scale: 1 inch = 500 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1986: Farm Fields and Lancaster Lake Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report

Legend

Study Area Boundary (358.14 acres)

Lewis River

Lancaster Lake

Gee Creek

N

Date: 5/6/2016

Scale: 1 inch = 500 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1996: Farm Fields and Lancaster Lake Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 1,000 Feet

Plas Newydd Farm
Wetland Delineation Report

Date: 5/6/2016

Scale: 1 inch = 400 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1929: Gee Creek - South Backwater Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 Feet

Plas Newydd Farm
Wetland Delineation Report

Date: 5/6/2016

Scale: 1 inch = 400 feet

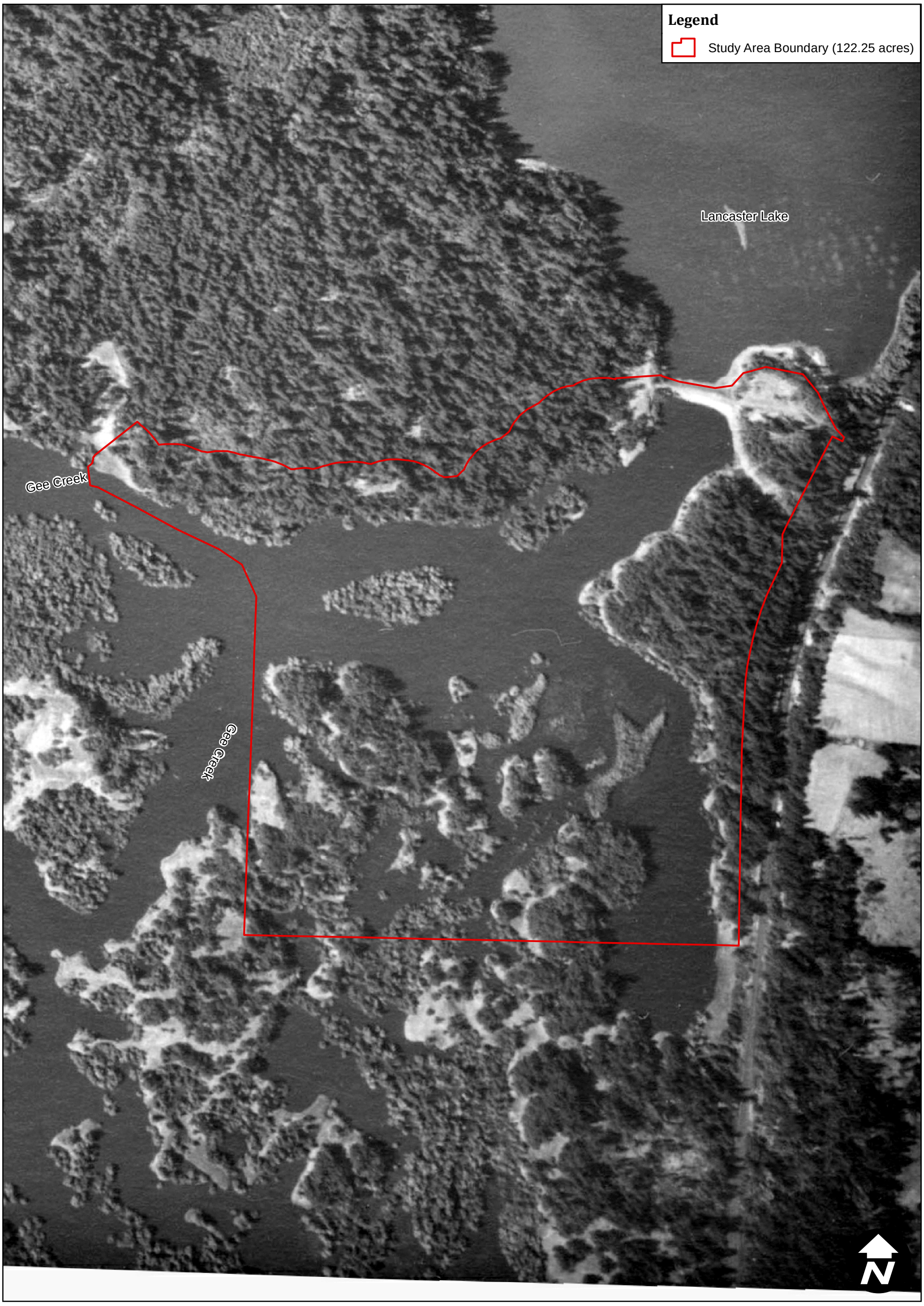
Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1936: Gee Creek - South Backwater Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 Feet

Plas Newydd Farm
Wetland Delineation Report



Date: 5/6/2016

Scale: 1 inch = 400 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1951: Gee Creek - South Backwater Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 Feet

Plas Newydd Farm
Wetland Delineation Report

Date: 5/6/2016

Scale: 1 inch = 400 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1969: Gee Creek - South Backwater Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 Feet

Plas Newydd Farm
Wetland Delineation Report

Date: 5/6/2016

Scale: 1 inch = 400 feet

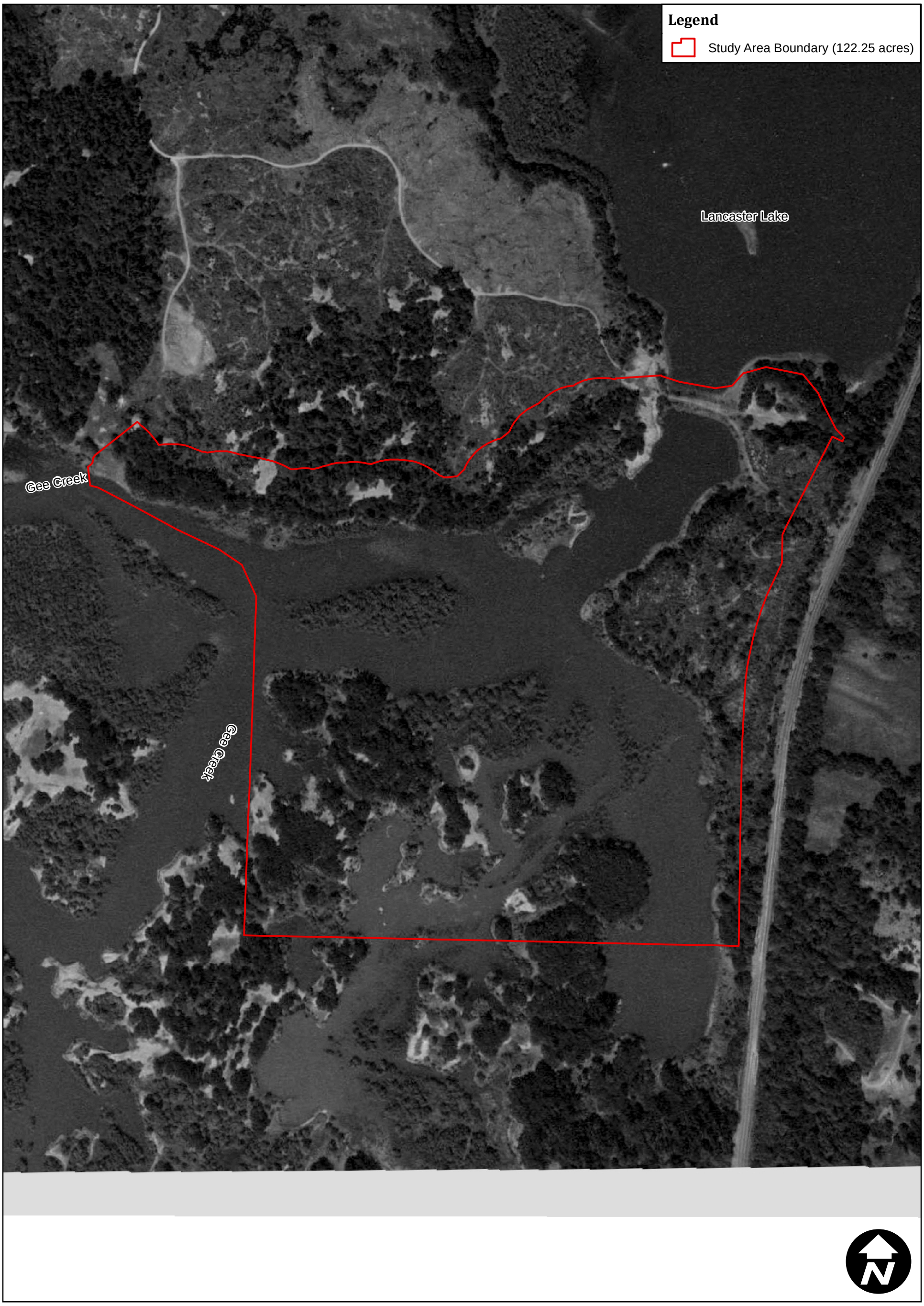
Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1977: Gee Creek - South Backwater Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 Feet

Plas Newydd Farm
Wetland Delineation Report



Date: 5/6/2016

Scale: 1 inch = 400 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1986: Gee Creek - South Backwater Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 Feet

Plas Newydd Farm
Wetland Delineation Report

Date: 5/6/2016

Scale: 1 inch = 400 feet

Data Source: Plas Newydd Farm, LLC

Appendix D. Historical Aerials - 1996: Gee Creek - South Backwater Study Area

CASCADE ENVIRONMENTAL GROUP

0 250 500 Feet

Plas Newydd Farm
Wetland Delineation Report