

# LEAVENWORTH REGIONAL STORMWATER PLAN

## WETLAND INVENTORY REPORT

PREPARED FOR:

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Attachment 1. Wetland Data Sheets  
Attachment 2. NRCS Soil Survey Report for the Study Area  
Attachment 3. Wetland Rating Forms

# 1 INTRODUCTION

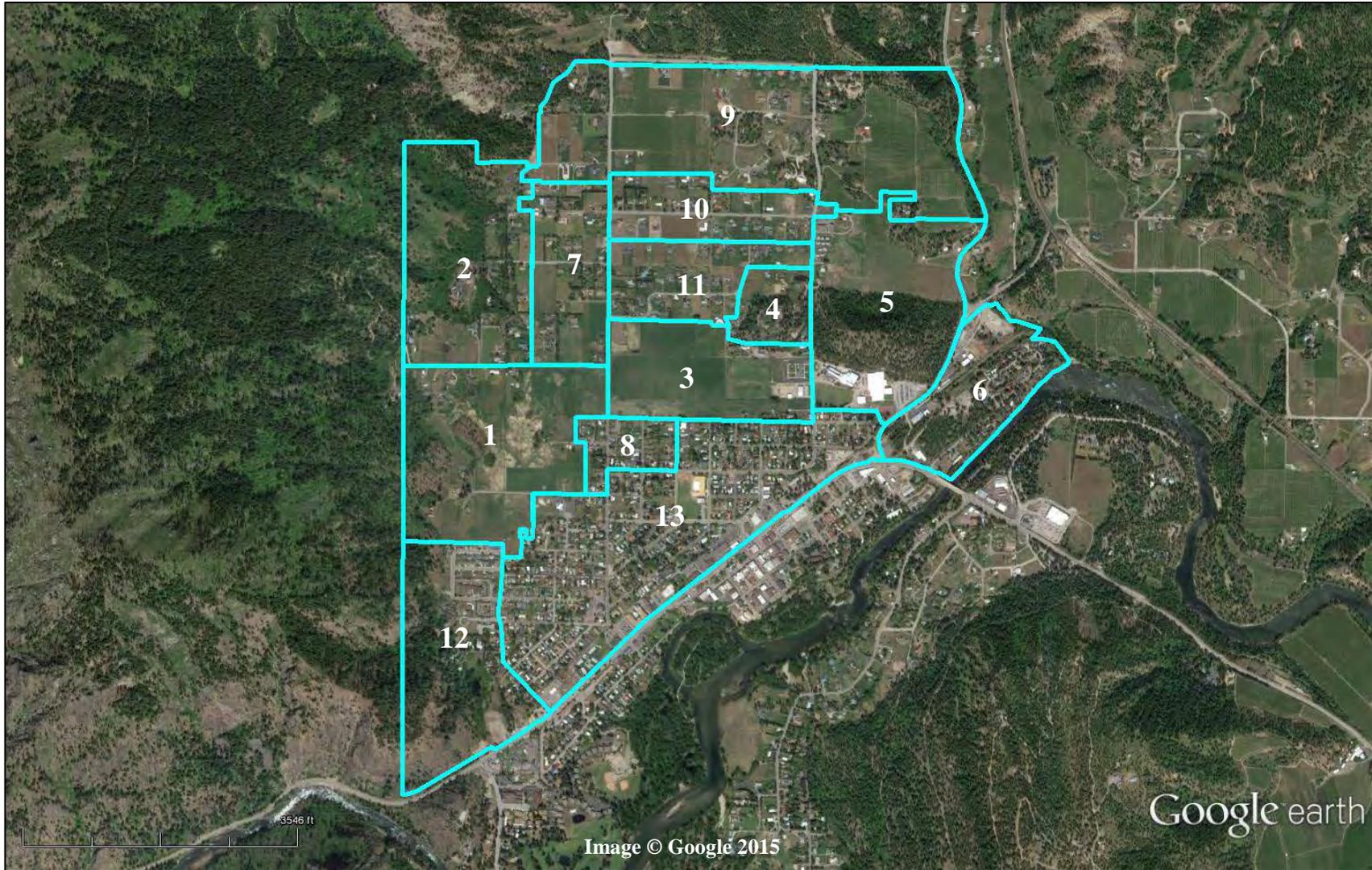
Grette Associates, LLC was contracted by the City of Leavenworth to conduct a wetland delineation and classification within the city limits and Urban Growth Area (UGA), primarily north of Hwy 2. The study encompassed several parcels within Township 24 North, Range 17 East, Sections 1, 2, 11, and 12 (Figures 1 and 2). The purpose of this study was to determine the presence/absence of wetlands and, if present, to flag the boundaries and determine appropriate wetland buffers on the site. In April/May, 2015, Grette Associates conducted field wetland delineations to record field wetland data. In June 2015, using the field data collected previously, Grette Associates delineated the boundaries of the wetlands identified and rated each wetland. This report presents the study methods and findings of the field investigations. Field data sheets are attached for reference in Attachment 1 and wetland rating forms are included as Attachment 2.

This report should be considered a wetland inventory, which maps probable wetlands. It should be noted that this is a large-scale wetland study and thus wetland boundaries were recorded with GPS but not permanently marked on any one property. It provides general information over a large area as the conditions existed when the field work was completed. Because wetlands can change over time, the findings herein should be used as a guide and wetland boundaries should be re-identified based on the recorded GPS locations and verified for site specific development projects. Not all owners of private property granted access to investigate their properties for wetlands. Where access was not granted, no definitive wetland determination could be made.

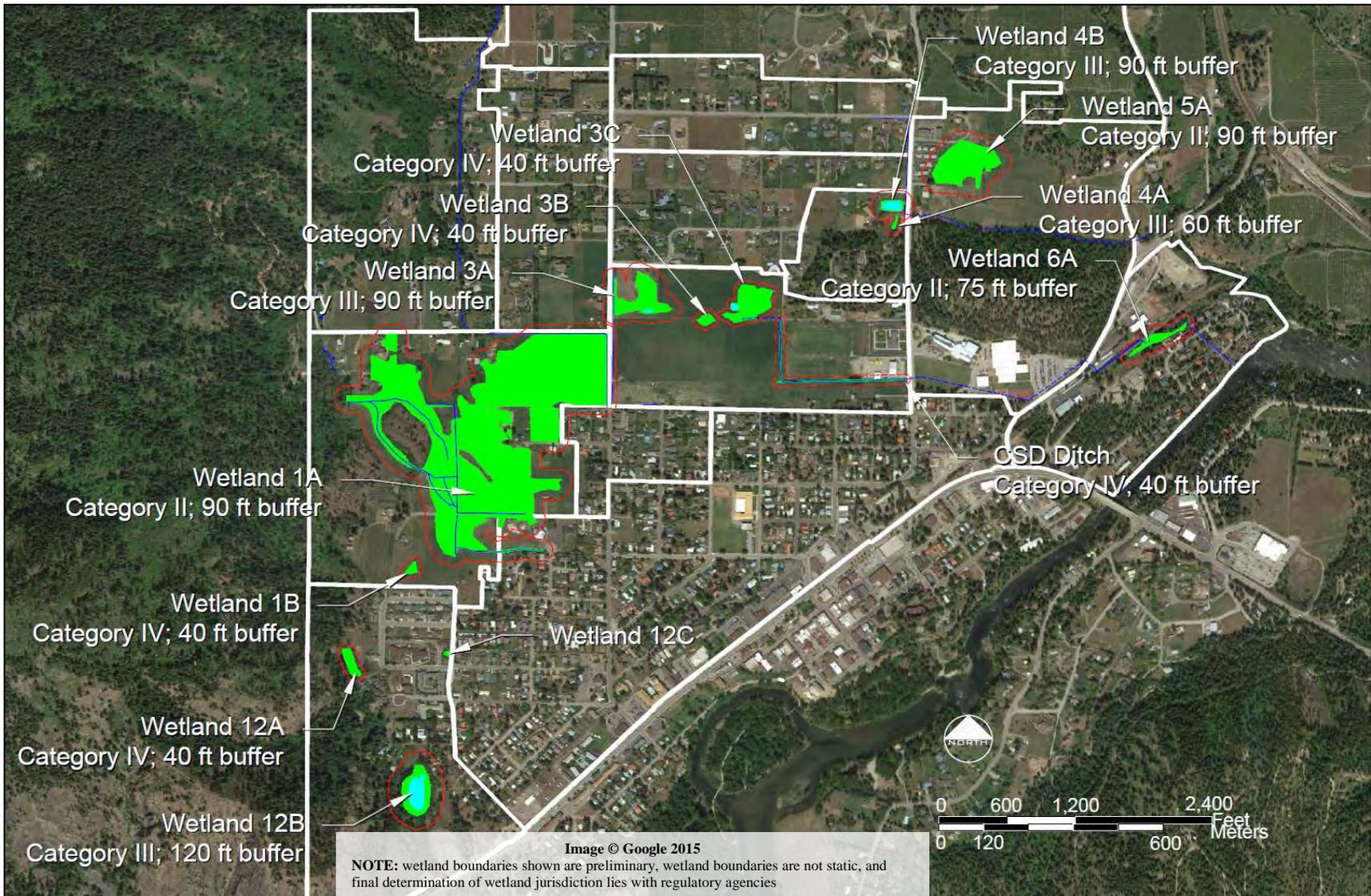


Figure 1. Vicinity map 1





**Figure 3. Study Area region map.**



**Figure 4. Wetlands and ditches within the Study Area.**

### 3 METHODS

An initial reconnaissance of the Study Area was conducted using aerial imagery to identify the areas that potentially contain wetlands. Once identified, Grette Associates contacted landowners of potential wetlands to obtain permission to conduct field investigations<sup>1</sup>. Field investigations consisted of traversing the Study Area—focusing on the areas potentially containing wetlands—and digging wetland data pits in strategic locations. The wetlands in the Study Area were anticipated to be groundwater-driven, thus prone to drying out later in the growing season. Therefore, it was assumed that wetland hydrology may only be present early in the growing season, particularly during a year with low levels of snowpack such as winter 2014-2015 preceding the investigation. To avoid the possibility of misidentifying wetlands as uplands due to a dry-season water table, wetland data were recorded as early in the growing season as was feasible. This occurred from approximately April 8 through May 13, 2015, then again on April 26, 2016.

Wetland conditions were determined based on the criteria found in the applicable wetland delineation manuals (discussed below), including changes in vegetative communities, water levels at or above 12 inches below the soil surface, topographic changes, presence of hydric soils, and best professional judgment. Data plots were established in and adjacent to the areas most likely to contain wetland conditions based on topography and vegetative community. The location of the data points are presented in Figures 9-21 below. As wetland data pits were sampled, their locations were recorded using a handheld differential global positioning system (dGPS) datalogger, with an accuracy of  $\pm 16$  inches.

#### 3.1 WETLAND DELINEATION

The boundaries between wetlands and uplands were determined using the data collected from the data pit locations. Wetland boundaries were marked using dGPS and added to the map file with the data pit locations.

Guidance from the 1987 Army Corps of Engineers Wetlands Delineation Manual (“1987 Manual”) (USACE 1987), as well as the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (“Western Mountain Supplement”) (USACE 2010) was used to perform the wetland delineation. The methods in these manuals recognize that the three parameters of hydrology, hydric soils, and hydrophytic vegetation are generally found in wetlands and that these parameters are important in the establishment and maintenance of wetland communities. The methods evaluate each of the three parameters to determine if a wetland is present and to establish wetland boundaries.

The presence of dominant hydrophytic vegetation as well as indicators of wetland hydrology are used to delineate the boundary between wetland and upland areas. Wetland

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<sup>1</sup> In some cases, Grette Associates was not able to obtain permission for areas likely to contain wetlands. In those cases any wetland boundaries were estimated using aerial photographs and offsite observation to the extent possible. Parcels where access was not granted are indicated in the figures below.

boundaries are then confirmed by checking the soil color and organic content to verify presence of hydric soils. Wetlands are classified using the U.S. Fish and Wildlife Service’s (USFWS) Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) and are categorized using Ecology’s Washington State Wetlands Rating System for Eastern Washington – Revised (Hruby 2014).

### 3.1.1 Hydrophytic Vegetation

The National Wetland Plant List: 2014 (Lichvar et al. 2014) was used to determine vegetation indicator status. This system uses a system that assigns an indicator status to commonly occurring plant species on the basis of their frequency of occurrence in wetlands (Table 1). Species indicator status expresses the range in which plants typically occur in wetlands and non-wetlands (uplands). Under this system, vegetation is considered hydrophytic when there is an indicator status of facultative (FAC), facultative wetland (FACW) or obligate wetland (OBL) (Table 2).

**Table 2. Definitions for USFWS plant indicator status**

Plant Indicator Status Category	Indicator Status Abbreviation	Definition (Estimated Probability of Occurrence)
Obligate Upland	UPL	Occur rarely (<1 percent) in wetlands, and almost always (>99 percent) in uplands
Facultative Upland	FACU	Occur sometimes (1 percent to <33 percent) in wetlands, but occur more often (>67 percent to 99 percent) in uplands
Facultative	FAC	Similar likelihood (33 percent to 67 percent) of occurring in both wetlands and uplands
Facultative Wetland	FACW	Occur usually in wetlands (>67 percent to 99 percent), but also occur in uplands (1 percent to 33 percent)
Obligate Wetland	OBL	Occur almost always (>99 percent) in wetlands, but rarely occur in uplands (<1 percent)
Not Listed	NL	Not listed are considered UPL

Under the Western Mountains Supplement, the hydrophytic vegetation criterion for a wetland determination is determined primarily by three tests, in order of priority: the rapid test, the dominance test, and the prevalence index. Passing any one of these tests results in a determination of hydrophytic vegetation. The rapid test is passed if all dominant species across all strata are “FACW” or wetter. The dominance test is met when more than 50 percent of the dominant species in the plant community are “FAC” or wetter. The percent dominance for each plant strata was determined using the “50-20 Rule”. The prevalence index is a weighted formula that determines whether or not a plant community is hydrophytic based on the relative abundance of more or less strongly hydrophytic species. More strongly hydrophytic species (e.g. OBL) are weighted more heavily in the formula than less strongly hydrophytic species (e.g. FAC). The formula produces a numerical score, which determines whether or not the plant community is hydrophytic. Additionally, the observation of morphological plant adaptations and the presence of wetland non-vascular plants can be used as hydrophytic vegetation indicators. Non-hydrophytic vegetation can also be considered problematic hydrophytic vegetation if supported by best professional judgment and the hydric soils and hydrology indicators are also passed.

### 3.1.2 Wetland Hydrology

Evidence of permanent or periodic inundation or soil saturation to the surface for 12.5% of the growing season (soil temperatures above 41°F at 19.7 inches below the surface) meets the hydrology criterion. Though soil temperatures were not recorded, it was estimated that the growing season began approximately March 1 and typically continues through October, for a total of approximately 245 days. Thus, hydrology would meet this criterion if it was present for at least 30 days, equal to approximately 12.5% of the 245 day growing season.

The Western Mountains Supplement includes several indicators of wetland hydrology, divided into four categories: Category A (observation of surface water or saturated soils), Category B (evidence of recent inundation), Category C (evidence of current or recent soil saturation), and Category D (evidence from other site conditions or data). Category A includes direct observations of hydrology, and Categories B-D include indirect observations. Within each category, indicators are further divided into “primary” and “secondary” indicators. One primary indicator or at least two secondary indicators are required to confirm the presence of wetland hydrology. According to the Western Mountains Supplement, all indicators are “intended as one-time observations that are sufficient evidence of wetland hydrology in areas where hydric soils and hydrophytic vegetation are present” (U.S. Army Corps of Engineers 2010, 69).

In the Western Mountain Supplement, nineteen primary indicators have been established, including surface water, high water table, soil saturation, surface soil cracks, inundation visible on aerial imagery, water-stained leaves, presence of reduced iron as determined by a positive reaction to alpha-alpha dipyridyl solution, hydrogen sulfide odor, and oxidized rhizospheres along live roots in the top 12 inches. Eight secondary indicators have been established, including drainage patterns, dry-season water table, saturation visible on aerial imagery, and a positive FAC-neutral test.

Wetland site visits were conducted from April 8-May 13, 2015, following a winter of record-low snowpack in the Cascade Mountains and forecasts for drought in the Wenatchee River Basin (<http://www.ecy.wa.gov/drought/>). Total precipitation in 2015 prior to the field investigations was 6.91 inches (NRCS 2015a), which is approximately 75% of normal (9.22 inches; NRCS 2015b). Therefore, precipitation levels are considered to be normal for the purpose of evaluating hydrological conditions on the site. The average rainfall within the last seven Water Years was 26.84 inches<sup>2</sup> (NRCS 2015b). Table 1 below presents an analysis of the appropriate NRCS WETS table (NRCS 2015b) for the three months preceding the field investigation. Bins were established to determine the overall rainfall period during the field investigation; drier (sum in 6-9), normal (sum is 10-14), wet (sum is 15-18). A sum of 11 indicates that hydrologic conditions are normal.

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<sup>2</sup> Represents the average annual precipitation of the last seven years with complete data: 2005-2007; 2011-2014. Due to missing data in 2008-2010, these years were not used.

**Table 3. NRCS WETS table analysis**

Preceding Month	WETS Rainfall Percentile (inches)		Measured Rainfall <sup>1</sup> (inches)	Conditions <sup>2</sup>	Condition Value <sup>3</sup>	Month Weight	Value
	30%	70%					
May	0.36	1.04	0.64	Normal	--	--	--
April	0.55	1.34	0.42	Dry	--	--	--
March	1.31	2.52	1.62	Normal	2	3	6
February	1.84	3.93	1.56	Dry	1	2	2
January	2.31	5.37	3.73	Normal	2	1	2
						Sum:	10

<sup>1</sup> Observed rainfall for the month

<sup>2</sup> Dry conditions are below 30% WETS table value, Normal conditions are between 30% and 70% of the WETS table values, Wet conditions are above 70% of the WETS table value.

<sup>3</sup> dry equals a value of 1, normal equals a value of 2, wet equals a value of 3

In anticipation of this, site visits were conducted as early as possible in the growing season. A drop in the water table was observed in late April/early May in response to warm, dry weather. Therefore, data collected after approximately April 20 were considered under the “Dry Season Water Table” secondary hydrologic indicator, as appropriate.

### 3.1.3 Hydric Soils

Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper soil horizons are considered hydric soils. Hydric soil indicators are formed primarily by the accumulation or loss of iron, manganese, sulfur, or carbon compounds in a saturated or anaerobic environment. The Western Mountains Supplement includes six hydric soils indicators that apply to all soil types, including histosols, histic epipedon layer, black histic layer, a sulfidic odor, depleted soil matrix below dark surface, and thick dark surface. Additional indicators also apply based on the soil type (U.S. Army Corps of Engineers 2010). Some soils, even under wetland conditions, do not readily develop redoximorphic features or otherwise display typical hydric soil indicators due to their physical or chemical characteristics. Under certain circumstances described in the Western Mountain Supplement, these soils may be determined to be “Problematic Hydric Soils” if hydrophytic vegetation and wetland hydrology are present.

When redoximorphic features were lacking in pits that contained both wetland hydrology and hydrophytic vegetation, soils were deemed a “Problematic Hydric Soil” if the pits were ponded or flooded, or the water table was 12 inches or less from the surface for at least 14 consecutive days within the growing season or if a positive alpha-alpha dipyriddy reaction was observed. Based on the date of the site visit, it was assumed that if a pit was excavated and found to have a water table within 12 inches of the surface it had been in that state for at least 14 days within the growing season and thus qualified as hydric soils. Due to the prevalence of Problematic hydric Soils, hydric soils were a poor indicator of the wetland boundary. However, a lack of hydrology or hydrophytic vegetation would disqualify the soil as a “Problematic Hydric Soil”.

## 4 BACKGROUND INFORMATION

The Study Area is located in the City of Leavenworth, Chelan County, Washington (Figures 1 and 2), and occupies approximately 1,150 acres north of U.S. Hwy 2.

### 4.1 STUDY AREA CHARACTERISTICS

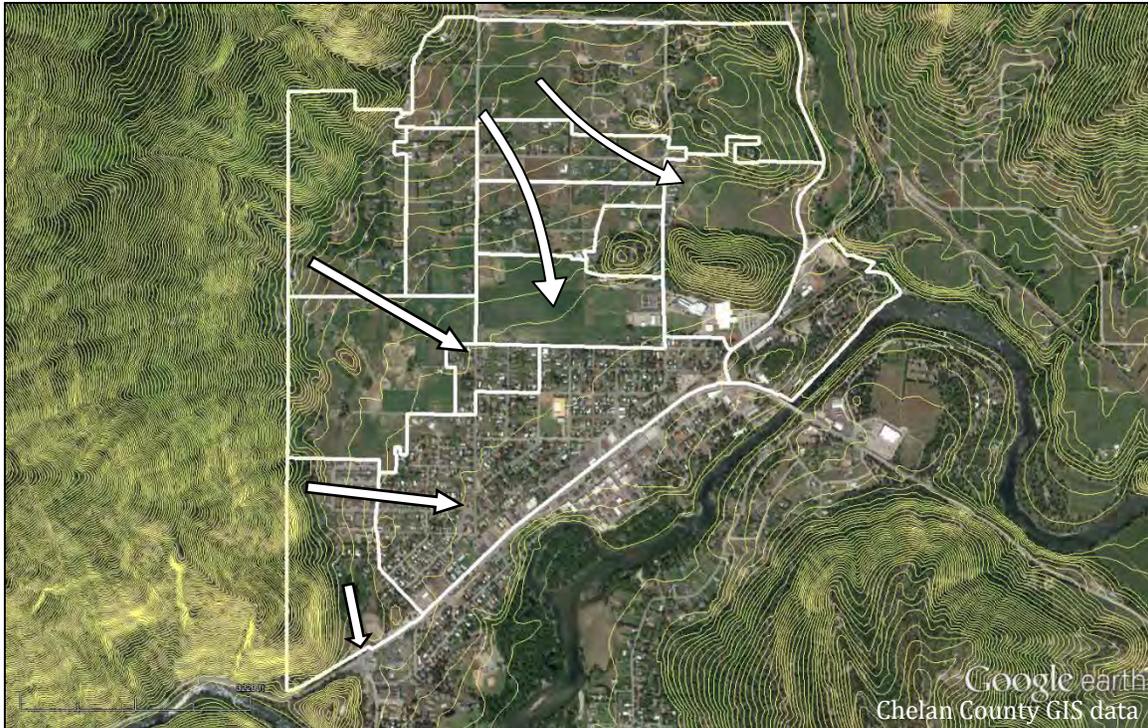
#### 4.1.1 Physical Characteristics

The Study Area consists primarily of residential property within the city limits and Urban Growth Area of Leavenworth, and much of the area is developed as such. In general, the Study Area encompasses a small watershed surrounding the area known as Ski Hill. The Study Area generally slopes from northwest to southeast from Tumwater Ridge and Ski Hill Ridge down toward Hwy 2 (Figure 5). At the base of the ridges the Study Area slope is approximately 5-6%, then decreasing to 1-2% closer to Hwy 2 (Figure 6).

The western portion of the Study Area is generally uniformly sloped, with small microtopographic variations. In the eastern portion of the Study Area are three small hills raising a maximum of approximately 250 ft above the surrounding land. These hills serve to divide surface drainage off Ski Hill into two general paths: south toward the City of Leavenworth and the Wenatchee River, and southeast toward Chumstick Creek.



**Figure 5. Oblique aerial photograph of the Study Area showing elevation relief within and around the Study Area (white polygons), facing northwest**



**Figure 6. Topographic contours (20 ft intervals) of the Study Area; arrows indicate surface drainage patterns**

#### **4.1.2 Hydrology**

A high water table is present in much of the Study Area, with water daylighting in various locations throughout Ski Hill. Groundwater management has been on-going in the Study Area for the past century, as the Study Area was formerly dominated by agricultural land uses such as orchards, hay farming, and livestock. Excessive groundwater was managed through the installation of tile drain systems, pervious concrete cisterns, as well as surface ditches. The extent of groundwater management infrastructure is not known. Several surface drainages from Tumwater Mountain pass through the Study Area as well.

#### **4.1.3 Vegetation**

As discussed above, the Study Area is largely developed for residential uses, and thus much of the Study Area is dominated by landscaped vegetation and lawns. Some hay farming and orchards remain, as well as some large vacant land. Undisturbed areas are generally dominated by reed canary grass (*Phalaris arundinacea*), large-leaf lupine (*Lupinus polyphyllus*), and timothy grass (*Phleum pratense*). Upland areas are dominated by tree and shrub habitats, including Ponderosa pine (*Pinus ponderosa*) and associated upland shrubs such as serviceberry (*Amelanchier alnifolia*), ocean spray (*Holodiscus discolor*), snowberry (*Symphoricarpos albus*), and nootka rose (*Rosa nutkana*).

## 4.2 NATIONAL WETLANDS INVENTORY

The U.S. Fish and Wildlife Service’s National Wetlands Inventory (NWI) was queried to determine if previously identified wetlands are present on or near the study area (USFWS 2015). According to the NWI Interactive Online Mapper, six wetlands are present in the Study Area (Figure 7). Each wetland is labeled as a Palustrine Emergent wetland, and one includes a freshwater pond.

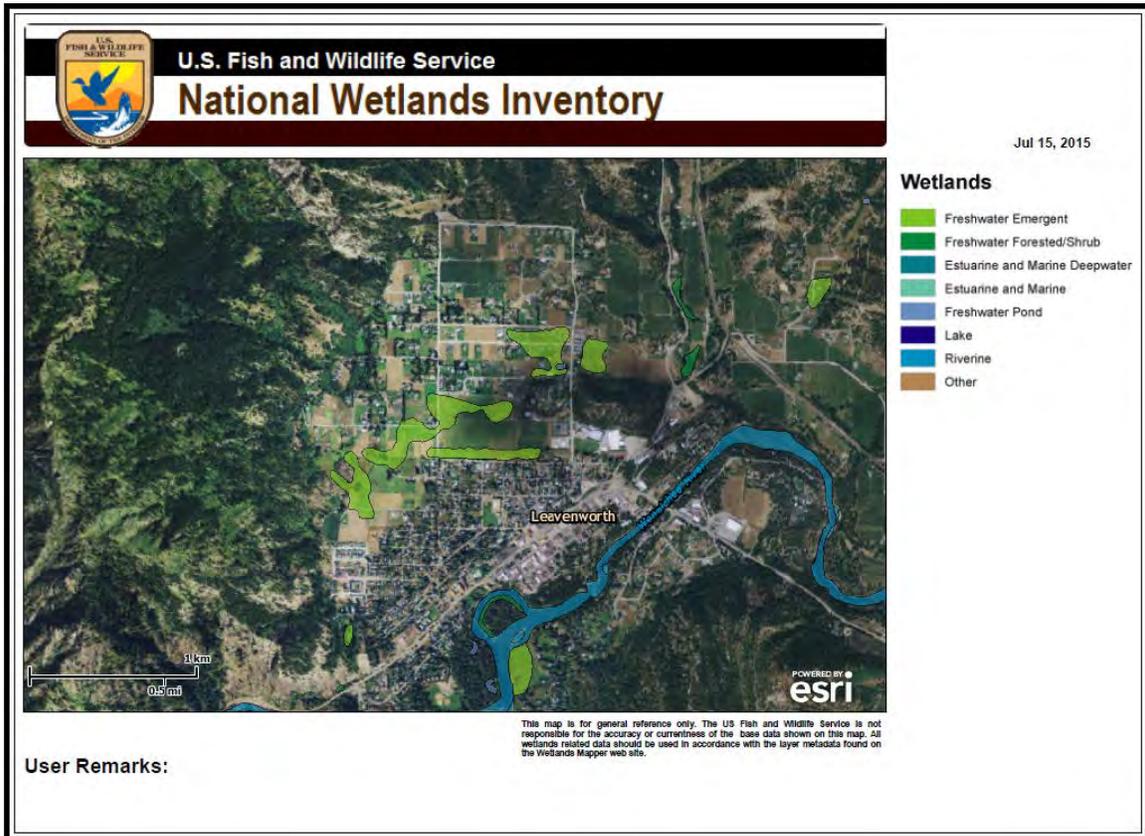


Figure 7. National Wetland Inventory (NWI) map of wetlands in vicinity of the study area

## 4.3 SENSITIVE WILDLIFE AND PLANTS

The Washington Department of Fish and Wildlife’s (WDFW) Priority Habitats and Species (PHS) database was queried to determine if state- or federally-listed fish or wildlife species occur on or near the study area. According to the PHS database, the study area is within a township mapped for the occurrence of Grizzly bear, as a breeding area for Golden eagle, as a communal roost for the little brown myotis and the Yuma myotis, for the occurrence as well as a management buffer for Northern spotted owl, and for the occurrence of Common Sharp-tailed snake. The PHS database does not identify the occurrence of any state or federally-listed wildlife species specifically within the extent of the study area. Due to the large-scale mapping resolution (quarter-township to township), it is not clear that any of these species occur in the Study Area. It is likely that the listings are applicable to the forested surrounding areas rather than the Study Area.

The Washington Department of Natural Resources' (WDNR) Natural Heritage Information System was queried to determine if the study area is reported to contain natural heritage features commonly associated with wetlands. According to WDNR data, a population of Wenatchee larkspur is present within the Study Area. As part of a previous wetland delineation on Ranger Road, Grette Associates located this population. It is not within the wetland, but is within a wetland buffer.

#### **4.4 SOIL INFORMATION**

The Natural Resource Conservation Service's (NRCS) Soil Survey of Chelan County Area and Soil Survey of Cashmere Mountain Area were consulted to determine the mapped soil present on the property. The Study Area includes several soil types. The most common soil types within the Ski Hill area are Peoh silt loam (Pe) and Burch fine sandy loam, 3-8% slopes (BuB) (Figure 8). The full soil report of the Study Area is included as Attachment 3.



## 5 RESULTS

The site assessment identified 12 wetlands in the Study Area (Figure 4). As mentioned above, for organizational purposes the Study Area was divided into 12 regions (Figure 3). Wetlands have been named according to the region in which they are located (e.g., Wetland 1A). Similarly, data points have been labeled in numeric order within each region, with the first digit corresponding to the region number (e.g. SP 1.1). Data sheets are included in this document as Attachment 1.

### 5.1 REGION 1

Region 1 encompasses the largely undeveloped area south of Ranger Rd, west of Ski Hill, and north of the residential areas along Wheeler, Tumwater, and West streets. This area generally consists of undeveloped wet meadows, pastures, and hillside adjacent to Tumwater Ridge. Reed canary grass (*Phalaris arundinacea*), timothy grass (*Phleum pratense*), meadow foxtail (*Alopecurus palustris*), and big-leaf lupine (*Lupinus polyphyllus*) are common. Small pockets of trees and shrubs—primarily black cottonwood (*Populus balsamifera ssp. trichocarpa*), black hawthorn (*Crataegus douglasii*) and red osier dogwood (*Cornus sericea*) are present but generally concentrated in residential areas or to the west at the toe of Tumwater Mountain.

Region 1 includes one small stream that drains Tumwater Ridge, entering the valley floor just south of Ranger Rd and turning south. Additional small streams follow a similar path south of this main stream. Several man-made drainage ditches are also present, as depicted in Figure 9.

The wettest areas of Region 1 are characterized by cattail (*Typha latifolia*) and reed canary grass, transitioning to timothy toward the upland areas. Probable wetland areas were identified by the presence of all three wetland criteria during early spring. Wetland 1A encompasses much of Region 1.

#### 5.1.1 Wetland 1A

Wetland 1A is a 42.2 acre depressional wetland located just south of Ranger Road and west of Ski Hill Drive (Photographs 1-6; 9). Wetland data pits SP-1.1 through SP-1.33, and SP 1.39 through SP 1.72 were dug to determine the boundaries of Wetland 1A (Figure 9). The wetland includes elements of a slope wetland. The wetland is fed by both surface and groundwater. Each of the three wetland criteria is discussed below.

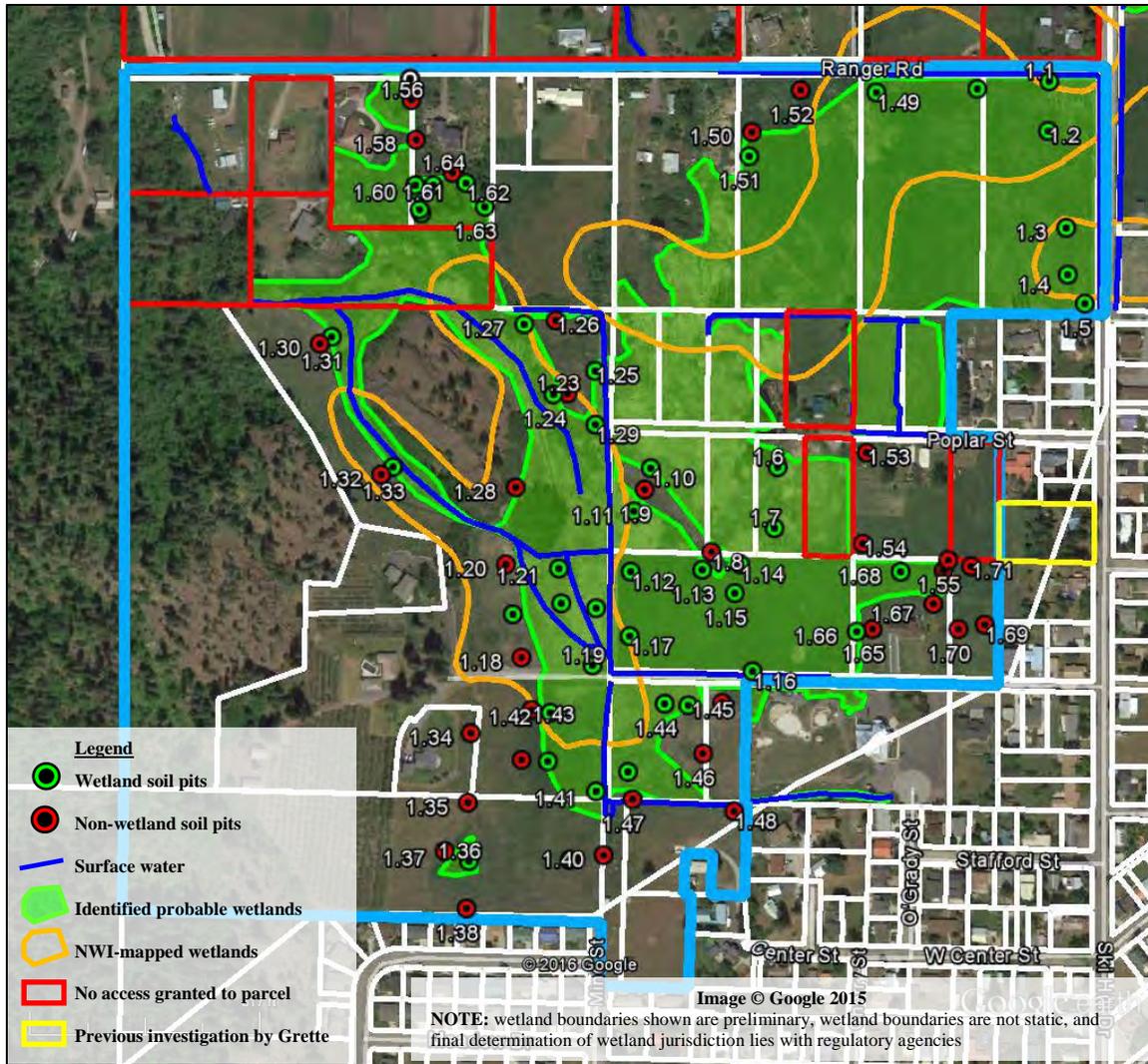


Figure 9. Region 1 data points and probable wetlands.

### 5.1.1.1 Vegetation

Vegetation within Wetland 1A is dominated by tall (>40”) herbaceous species, with small, scattered patches of scrub-shrub habitat and a few patches of trees. Reed canary grass (FACW) and large-leaf lupine (FAC) are dominant in much of the wetland. Cattail (OBL) and small-fruited bulrush (OBL) are found in the wettest portions of the wetland, while timothy grass (FAC) is found along the drier margins of the wetland and into the upland. Non-wetland species found in the surrounding upland areas include yarrow (FACU), sulphur cinquefoil (NL/UPL), and dandelion (FACU). Based on the abundance of hydrophytic vegetation, the wetland vegetation criterion is passed in Wetland 1A.

### 5.1.1.2 Hydrology

Wetland hydrology is provided by surface water and also by groundwater. A small seasonal stream enters the wetland from Tumwater Mountain to the west. The eastern portion of the wetland is also influenced by groundwater.

Primary indicators of wetland hydrology were observed in several of the data pits. Wetland hydrology was most commonly observed as saturated soils within the upper soil horizon, or a shallow water table. Surface inundation was observed in the lowest points of the site, including around SP-1.7. In the western portion of the wetland, surface water flowing from Tumwater Mountain was observed (Photograph 1).

As the season progressed precipitation levels continued to fall well below the 30-year average. Based on observations, the secondary hydrology indicator of “Dry Season Water Table” was applicable for pits that were dug after approximately April 22<sup>3</sup>. Additionally, alpha-alpha dipyridyl was applied to soil samples in all pits that contained moisture. A positive reaction to alpha-alpha dipyridyl—observed as the soil turning a pinkish color within 30 seconds—indicates the presence of reduced iron, which is only present in anoxic conditions. Thus, a positive reaction is a primary indicator of wetland hydrology.

### **5.1.1.3 Hydric Soils**

Soils in Wetland 1A were typically very low chroma (typically 10YR 2/1, N 2.5/, or 2.5Y 2.5/1) silt loam. Most of Wetland 1A is mapped as Peoh Silt Loam, which is listed as a hydric soil. Redoximorphic features were uncommon, even in areas that passed the other two wetland criteria. Because of this, soils often qualified as “Problematic Hydric Soils”.

A typical soil profile in Wetland 1A (SP 1.1) consists of black (10YR 2/1) silt loam from 0-8 inches, then very dark gray (10YR 3/1) coarse sand from 8-15 inches, then black (10YR 2/1) silt loam from 15-24 inches, then black (N 2.5/) coarse sand/gravel from 24-36+ inches. Redoximorphic concentrations, such as dark yellowish brown (10YR 4/6), were observed in some soil pits such as SP 1.7. A typical upland soil profile (SP 1.9) includes black (10YR 2/1) gravelly loam from 0-20, then very dark gray (5Y 3/1) silty gravelly sand from 20-28+ inches. Typically, upland soils differed little in color from wetland soil pits.

Based on the presence of problematic hydric soils and occasional redoximorphic features, the hydric soils criterion was passed.

### **5.1.2 Wetland 1B**

Wetland 1B is a 0.14 acre slope wetland just southwest of Wetland 1A, on a private parcel south of Wheeler Rd (Photograph 7; 9). Wetland data pits SP-1.35 through SP-1.38 were dug to determine the boundaries of Wetland 1B. Each of the three wetland criteria is discussed below.

#### **5.1.2.1 Vegetation**

Vegetation within Wetland 1B consists entirely of herbaceous species. Reed canary grass (FACW), large-leaf lupine (FAC), and timothy grass (FAC) are dominant. Timothy is also dominant in the upland surrounding Wetland B. Other upland species include yarrow

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<sup>3</sup> April 22 was chosen as the date after which Dry Season Water Table was considered appropriate due to a marked drop of water levels observed on or around that date in pits that had been left open.

(FACU), St. Johns wort (FACU), and sulphur cinquefoil (NL/UPL). Based on the abundance of hydrophytic vegetation, the wetland vegetation criterion is passed in Wetland 1B.

#### **5.1.2.2 Hydrology**

Wetland hydrology is provided by shallow water table from Tumwater Mountain just to the west. Primary indicators of wetland hydrology were observed in SP 1.36 as saturated soil within 5 inches and water table within 11 inches of the surface.

#### **5.1.2.3 Hydric Soils**

Soils in Wetland 1B included very dark gray (10YR 3/1) soil from 0-7 inches, then dark gray (2.5Y 4/1) sandy loam from 7-24 inches (SP 1.36). No redoximorphic features were observed. Since the other two wetland criteria were passed, the soils qualified as “Problematic Hydric Soils” as they were presumed to be saturated for at least 14 consecutive days. Upland soils consisted of very dark gray (2.5Y 3/1) silt loam from 0-8 inches, then dark grayish brown (2.5Y 4/2) stony loam from 8-22 inches.

### **5.2 REGION 3**

Region 3 encompasses the largely undeveloped area bounded by Village View Drive to the north and Pine St to the south, then Ski Hill Dr to the west and Titus Rd to the east. Region 3 is dominated by undeveloped pastures on the former Brender/Scamahorn properties majority of this area consists of undeveloped wet meadows and pastures. Region 3 has a long history of livestock grazing and hay farming. The eastern portion of Region 3 is the most developed, and includes the Cascade School District’s football and soccer practice fields.

As with Region 1, Region 3 is dominated by grasses. A variety of grass species are present, including timothy, meadow foxtail, and reed canary grass. Much of Region 3 is regularly mowed for hay production, and thus many of the species were unidentifiable. Forbs species such as red clover (*Trifolium pratense*) dandelion (*Taraxacum officinale*) are also common. Wetter areas are dominated by common rush (*Juncus effusus*) and small-fruited bulrush (*Scirpus microcarpus*).

Region 3 shows signs of past hydrologic manipulation. Several manmade ponds are present, each with pipes routing water downhill and underground. At least one of the ponds, and possibly both, are routed through pipes to a manmade ditch that flows south, then turns east and continues under Titus Rd, where it eventually empties into the Wenatchee River. These water features are depicted in Figure 4 and Figure 10.

Probable wetland areas were identified by the presence of all three wetland criteria during early spring.

### **5.2.1 Wetland 3A**

Wetland 3A is a 1.95 acre slope wetland immediately east of Ski Hill Drive and south of Village View Drive (Photograph 8, Photograph 9; Figure 10) wetland is bounded to the south by a dirt road, and the eastern portion of the wetland is mowed as part of a large pasture. A small pond is located within the boundaries of Wetland 3A. Eleven data pits (SP-3.5, and 3.9 through 3.18) were dug to determine the boundaries of Wetland 3A (Figure 10). Each of the three wetland criteria is discussed below.

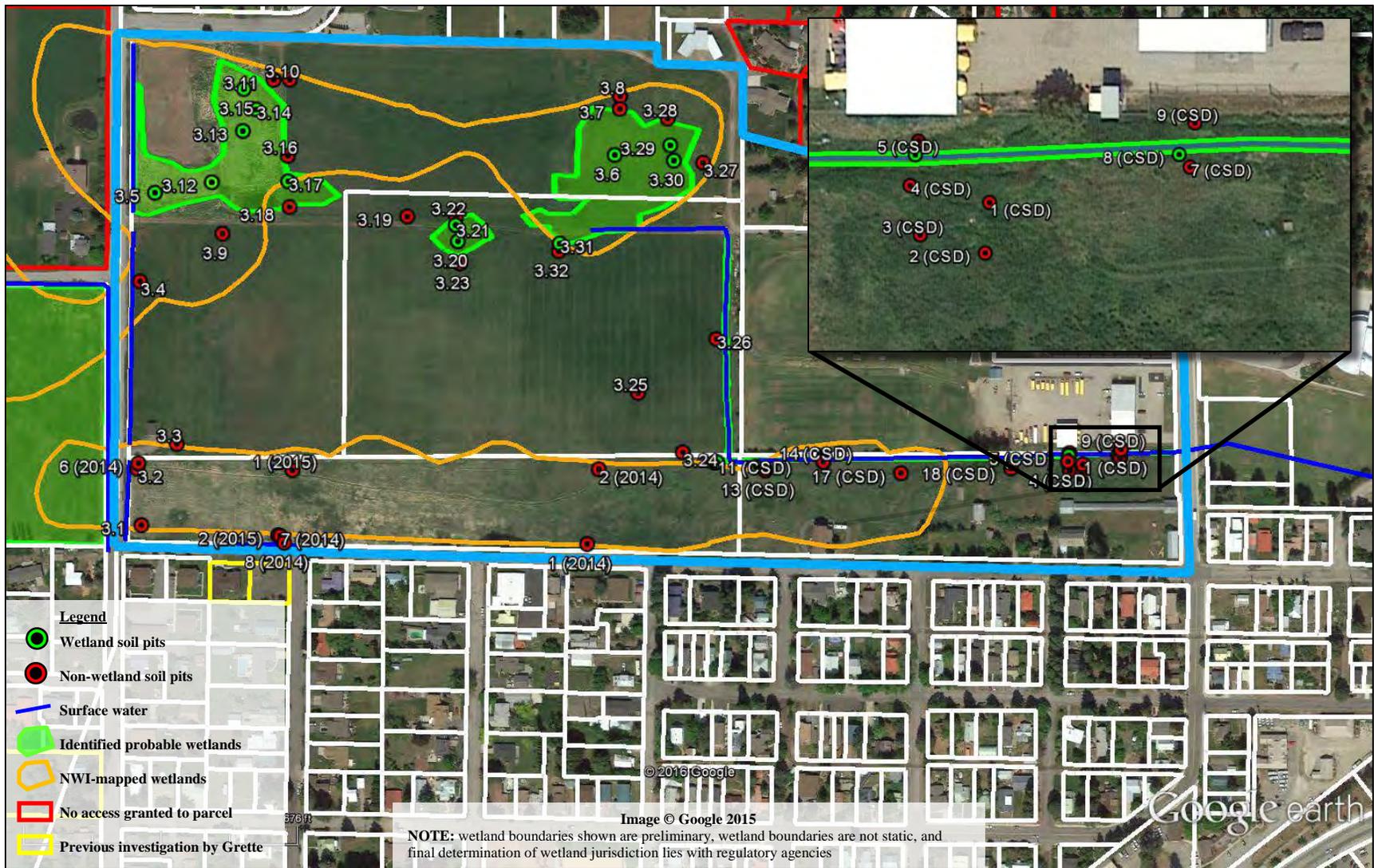


Figure 10. Region 3 data points and probable wetlands

### **5.2.1.1 Vegetation**

Vegetation within Wetland 3A is dominated by herbaceous species, primarily reed canary grass (FACW). Small-fruited bulrush (OBL) is present in the mowed, eastern portion of the wetland, and cattails (OBL) are present around the pond. Typical upland vegetation included timothy (FAC), dandelion (FACU), and red clover (FACU). Based on the abundance of hydrophytic vegetation, the wetland vegetation criterion is passed in Wetland 3A.

### **5.2.1.2 Hydrology**

Wetland hydrology is provided by groundwater from Ski Hill. Primary indicators of wetland hydrology were observed in SP 3.5, 3.12, 3.13, 3.14, 3.15, and 3.17 as saturated soil within the upper 12 inches. Saturated soils were observed in SP 3.16 and 3.18 at 18 inches below the surface (observed on April 9), and thus did not contain wetland hydrology.

### **5.2.1.3 Hydric Soils**

A typical soil profile in Wetland 3A includes black (N 2.5/) silt loam from 0-20+ inches (SP 3.12). No redox features were observed. Due to the lack of redox features but the presence of hydrophytic vegetation and wetland hydrology, soils were classified as “Problematic Hydric Soils”. Upland soils consisted of very dark gray (2.5Y 3/1) silt/clay loam from 0-9 inches, then very dark gray (2.5Y 3/1) stony loam from 9-21 inches with brown (7.5YR 4/4) redox concentrations.

## **5.2.2 Wetland 3B**

Wetland 3B is an 0.20 acre slope wetland east of Wetland 3A (Photograph 10; Figure 10). The wetland is not bounded by elevation features and consists of an isolated patch of saturated surface soil within the larger hillslope. Wetland 3B is mowed as part of a large pasture. Four data pits (SP-3.20 through 3.23) were dug to determine the boundaries of Wetland 3B. Each of the three wetland criteria are discussed below.

### **5.2.2.1 Vegetation**

Vegetation within Wetland 3B is dominated by herbaceous species, primarily small-fruited bulrush (OBL) and timothy (FAC). Surrounding upland areas are characterized by a lack of small-fruited bulrush and a dominance of timothy and other grasses. Based on the abundance of hydrophytic vegetation, the wetland vegetation criterion is passed in Wetland 3B.

### **5.2.2.2 Hydrology**

Wetland hydrology is provided by daylighting groundwater. Primary indicators of wetland hydrology were observed in SP 3.20 and 3.21 as saturated soil within the upper 12 inches. Saturation was observed just below 12 inches in SP 3.22 and 3.23.

### **5.2.2.3 *Hydric Soils***

A typical soil profile in Wetland 3B (SP 3.20) includes black (10YR 2/1) silt/clay loam with brown (7.5YR 4/4) redoximorphic concentrations from 0-13 inches, then black (N 2.5/) silt/clay loam with brown (7.5YR 4/4) redoximorphic concentrations from 13 to 24 inches. Upland soils consisted of black (2.5Y 2.5/1) silt loam from 0-9 inches, then black (2.5Y 2.5/1) silt loam with brown (7.5YR 4/4) redox concentrations from 9-11 inches, then black (N 2.5/) silt loam with brown (7.5YR 4/4) redox concentrations from 11-24 inches. Hydric soils were observed in SP 3.20 and 3.21, but were not observed in SP 3.22 or 3.23.

### **5.2.3 *Wetland 3C***

Wetland 3C is a 1.85 acre slope wetland east of Wetland 3B (Photograph 11, Photograph 12; Figure 4, Figure 10). The wetland consists of an isolated patch of saturated surface soil within the larger hillslope, and includes a small manmade pond. Much of Wetland 3C is mowed as part of a large pasture. Nine data pits (SP-3.6-3.8, 3.27 through 3.32) were dug to determine the boundaries of Wetland 3C. Each of the three wetland criteria is discussed below.

#### **5.2.3.1 *Vegetation***

Vegetation within Wetland 3C is dominated by herbaceous species, primarily small-fruited bulrush (OBL) and reed canarygrass (FACW). Timothy (FAC) was prevalent in the surrounding upland, as well as other unidentified grass species. Based on the abundance of hydrophytic vegetation, the wetland vegetation criterion is passed in Wetland 3C.

#### **5.2.3.2 *Hydrology***

Wetland hydrology is provided by daylighting groundwater. Primary indicators of wetland hydrology were observed in SP 3.6, 3.29, 3.30, and 3.31 as saturated soil and/or shallow water table within the upper 12 inches. The boundary of the wetland was marked based on the lack of wetland hydrology in SP 3.27 and 3.28.

#### **5.2.3.3 *Hydric Soils***

A typical soil profile in Wetland 3C (SP 3.6) includes black (2.5Y 2.5/1) silt loam from 0-7 inches, then black (N 2.5/) silt/clay loam with strong brown (7.5YR 4/6) redoximorphic concentrations from 7 to 21 inches. Typical upland soils (SP 3.28) consisted of very dark gray (10YR 3/1) silt loam from 0-12 inches, then black (2.5Y 2.5/1) sandy loam from 12-17 inches, then black (2.5Y 2.5/1) sandy loam with brown (7.5YR 4/4) redox concentrations from 17-24 inches. Hydric soils were observed in SP 3.6 through 3.8, 3.29, 3.30, and 3.31, but were not observed in SP 3.27, 3.28, and 3.32.

### **5.2.4 *Brender/CSD Ditch***

A vegetated, man-made ditch in the eastern portion of Region 3 includes all three characteristics of a wetland (Grette Associates 2015). Although the ditch is man-made

and is supported entirely by irrigation practices, the Corps recently asserted jurisdiction on the ditch as a wetland (USACE 2016). No wetlands are present in this area outside of the ditch. Because the City of Leavenworth's code excludes artificially created wetlands from their regulations, the city at their discretion may determine this man-made wetland is not subject to buffers.

#### **5.2.4.1 Vegetation**

Vegetation within Ditch/Wetland A is dominated by reed canarygrass (FACW); however, authorized maintenance of the ditch removed the vegetation from over half the ditch in February 2016. Timothy (FAC) is prevalent in the fringes. Species present in the surrounding upland include Timothy grass (FAC), sulphur cinquefoil (NI/UPL), pineapple weed (FACU), and field pennycress (UPL). Based on the presence of hydrophytic vegetation in the ditch, the wetland vegetation criterion is passed in Ditch/Wetland A.

#### **5.2.4.2 Hydrology**

Hydrology in Wetland A is provided entirely by surface water conveyed in the manmade ditch, which flows perennially. No groundwater was observed in the test pits. Surface water in the ditch constitutes a primary hydrologic indicator, and satisfies the hydrology criterion for Wetland A.

#### **5.2.4.3 Hydric Soils**

A typical wetland soil profile in the western portion of the site (SP-11) consisted of black (2.5Y 2.5/1) silt loam from 0-8 inches, then black (2.5Y 2.5/1) silt loam with dark brown (7.5YR 3/4) redox concentrations from 8-20 inches. Some soil pits dug in areas with that pass the hydrophytic vegetation and hydrology criteria lacked redox features (e.g. SP-8). In that case, hydric soils were presumed present based on the presence of inundation for >14 consecutive days.

### **5.3 REGION 4**

Region 4 encompasses the area northeast of Region 3 and southeast of Region 11, bounded to the east by Titus Rd. Region 4 gradually slopes from north to south, terminating in a small hill at the south of Region 4. Region 4 is characterized a residential lots, some of which are developed as residences (primarily in the northern portion), some remaining undeveloped (western portion).

Developed lots are dominated by lawn grass and landscaping. The southern portion of Region 4 consists of native Ponderosa pine forested areas, on the small hill. Reed canary grass dominates the wetter portions of Region 4 at the northern based of the hill.

The Icicle Irrigation Ditch flows along the eastern edge of Region 4, along Titus Rd, then crosses Titus Rd to the east and continues to Chumstick Creek. A manmade pond is

present in Region 4, which is supplied with water from the ditch. These water features are depicted in Figure 4 and Figure 11.

Probable wetland areas were identified by the presence of all three wetland criteria during early spring.

### **5.3.1 Wetland 4A**

Wetland 4A is an 0.04 acre slope wetland west of Titus Road on parcel 241701550185 (Photograph 13; Figure 11). The wetland is located just north of a rock outcrop, which creates a small depression based on its landscape position on Ski Hill. Five data pits (SP 4.1 through 4.5) were dug to determine the boundaries of Wetland 4A (Figure 11). Each of the three wetland criteria is discussed below.

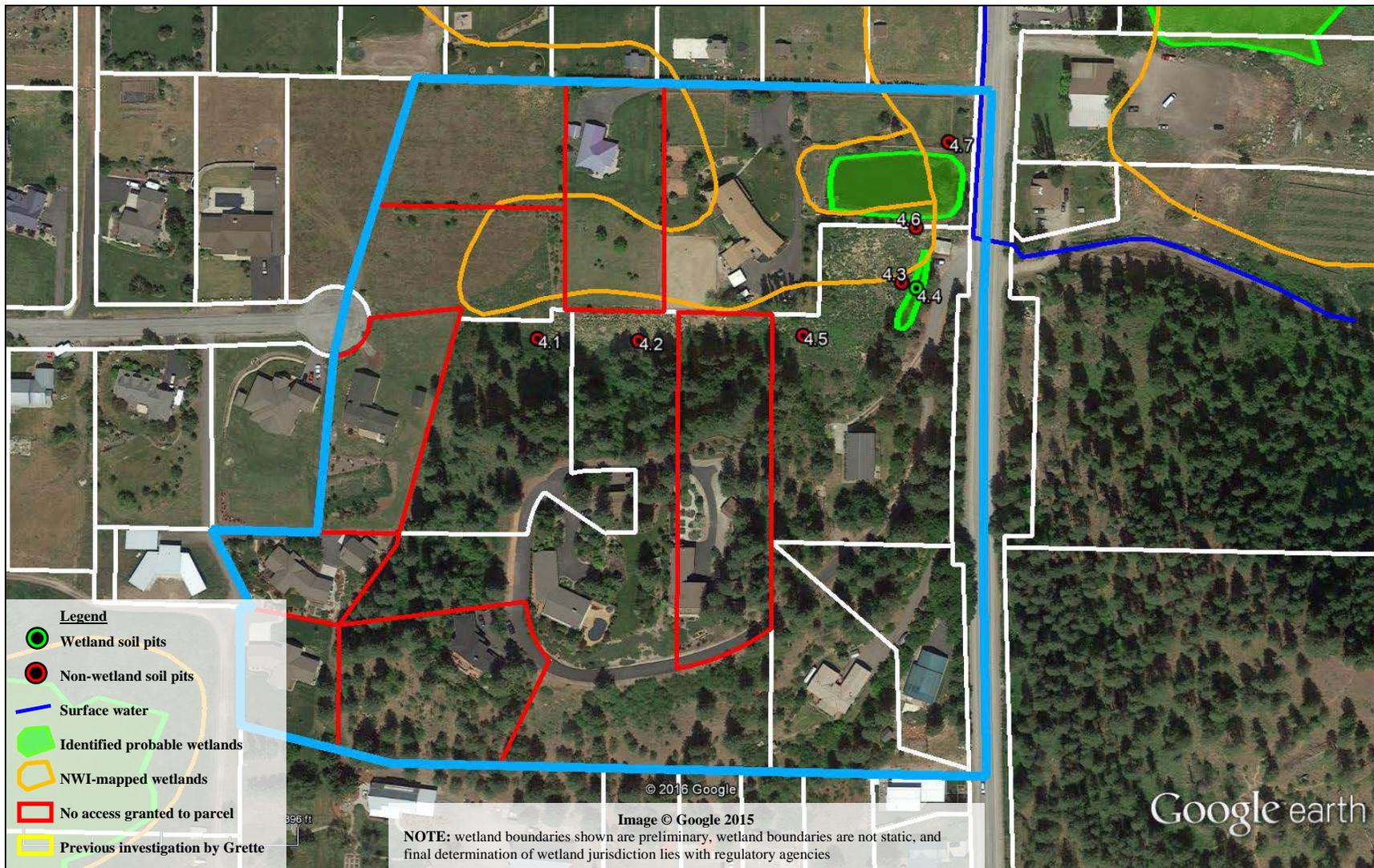


Figure 11. Region 4 data points and probable wetlands.

### **5.3.1.1 Vegetation**

Vegetation within Wetland 4A is dominated by herbaceous species, primarily reed canary grass (FACW). Large-leaf lupine (FAC) is also common, as is field horsetail (FAC). These species often continue into the upland around the wetland. Ponderosa pine (FACU) is also present in the surrounding upland. Based on the abundance of hydrophytic vegetation, the wetland vegetation criterion is passed in Wetland 4A.

### **5.3.1.2 Hydrology**

Wetland hydrology is provided by groundwater from Ski Hill. Primary indicators of wetland hydrology were observed in only SP 4.4, in which groundwater was encountered at 10 inches and saturation at 7 inches. In SP 4.3, which was dug approximately 45 ft to the west, groundwater was observed at 23 inches and saturation at 20 inches. Neither groundwater nor saturated soils were observed in SP 4.1, 4.2, or 4.5 down to 24-30 inches. Based on free water observed at 10 inches, the hydrology criteria was satisfied.

### **5.3.1.3 Hydric Soils**

Soils in Wetland 4A consist of very dark gray (5Y 3/1) silt loam from 0-11 inches with dark yellowish brown (10YR 3/6) redox features beginning at 7 inches. At 11 inches, the soil matrix color transitioned to dark gray (5Y 4/1) silt loam, but redox features persisted down to the bottom of the pit at 20 inches. Upland soils consisted of very dark gray (10YR 3/1) silt loam from 0-16 inches, with dark yellowish brown (10YR 3/6) redox features from 11-16 inches. At 16 inches, the soil matrix color transitions to very dark gray (5Y 3/1) silt loam with dark yellowish brown (10YR 3/6) redox concentrations. Redox concentrations were observed in all pits except SP 4.1, with redox features typically appearing below 10 inches.

## **5.3.2 Wetland 4B**

Wetland 4B is a manmade pond with an emergent wetland fringe located immediately west of Titus Rd and north of Wetland 4A, on parcel 241701550180 (Photograph 14; Figure 11). Wetland 4B is approximately 0.37 acre in size. Data pits SP 4.6 and 4.7 were dug to investigate Wetland 4B. Wetland 4B has been intentionally created through excavation for irrigation and agricultural purposes, and is fed by a pipe that diverts water from the Icicle Irrigation ditch that passes down Titus Rd. However, it is impossible to determine if the wetland was created from uplands. It is located within a mapped wetland on the NWI wetland map. Thus, it will be discussed as a regulated wetland. Each of the three wetland criteria is discussed below.

### **5.3.2.1 Vegetation**

Vegetation within Wetland 4B is dominated by emergent species such as cattail (OBL) and hardstem bulrush (OBL). Pacific willow (FACW) is present around the margins. Surrounding upland vegetation consists of mowed grasses and lawn weeds such as dandelion (FACU), as the pond is entirely within a maintained lawn. Based on the

abundance of hydrophytic vegetation, the wetland vegetation criterion is passed in Wetland 4B.

### **5.3.2.2 Hydrology**

As mentioned above, Wetland 4B includes a pond that is fed by an irrigation ditch. The wetland potentially also reaches the water table and thus may be fed by groundwater as well. The presence of standing water year round passes the hydrology criteria. SP-4.6, dug in the adjacent upland, did not encounter groundwater to a depth of 24 inches. SP-4.7, however, encountered groundwater at approximately 20 inches. This qualifies as “Dry Season Water Table” (C2), which is a secondary hydrology indicator. However, as no other secondary indicators were observed, the requirements for wetland hydrology were not met. It is our best professional judgment that SP-4.7 was located in upland, though it was close to satisfying all three wetland criteria. Therefore, SP 4.7 was excluded from Wetland 4B.

### **5.3.2.3 Hydric Soils**

No soil pit was dug within Wetland 4B due to steep banks and standing water. However, based on year round inundation soils are presumed hydric. Soils in surrounding uplands (SP-4.6) consist of very dark gray (10YR 3/1) silt loam from 0-16, then transitioning to dark gray (2.5Y 4/1) sandy loam with dark yellowish brown (10YR 4/6) redox concentrations. This soil passes as “Thick Dark Surface” (A12) hydric soils. However, as no wetland hydrology was observed, this pit was determined to be in the upland. In SP 4.7, redox features were found at the surface.

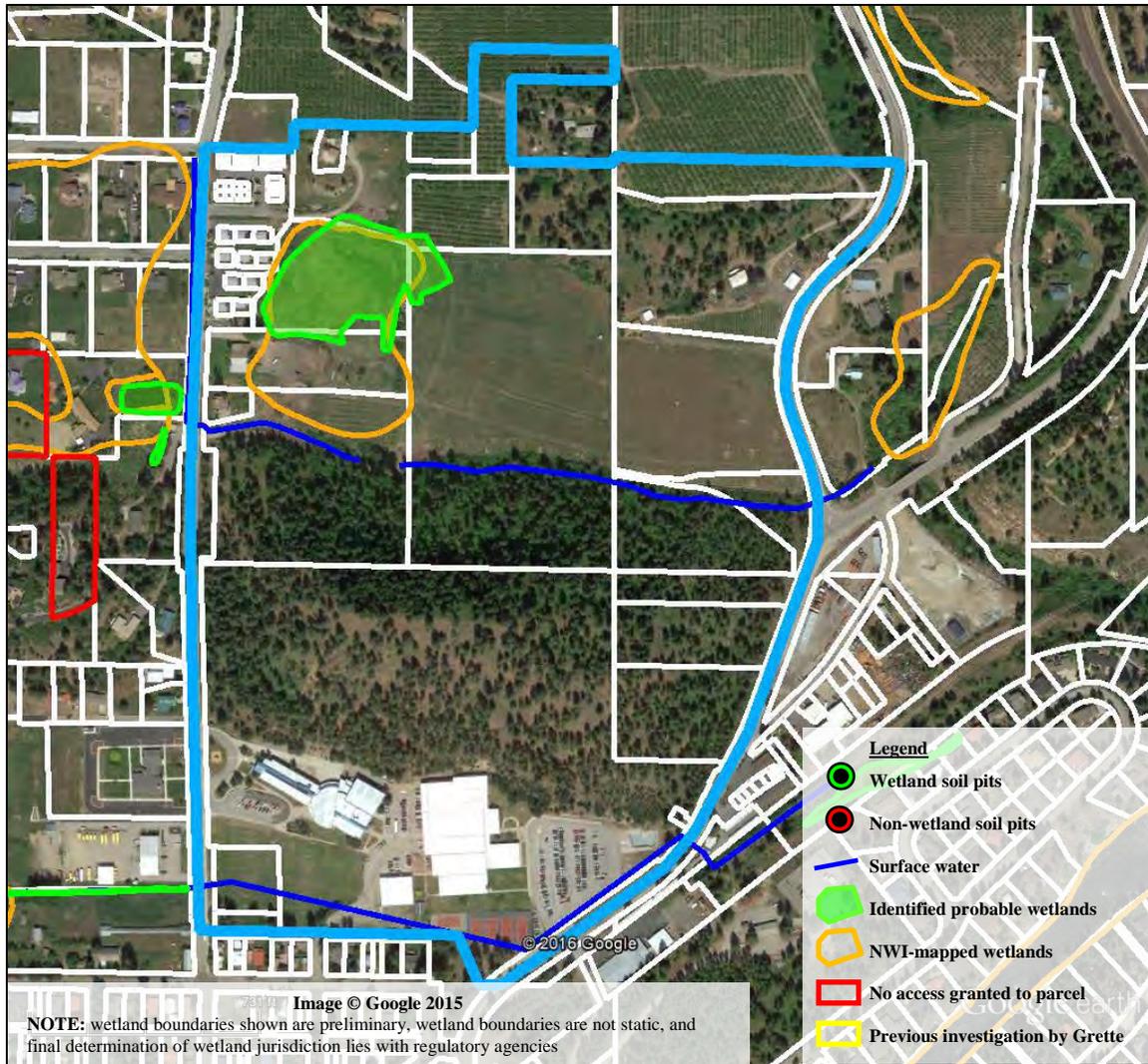
## **5.4 REGION 5**

Region 5 encompasses the area between Titus Rd and Chumstick Hwy. This region includes the current MEND property and the current Cascade High School grounds, bounded to the north by Region 9 and to the south by regions 6 and 13. The northern half of Region 5 consists of either orchards or undeveloped fields, transitioning to a forested hill north of the high school, then to the school grounds.

The northern portion of the site is dominated by wet meadows, vegetated primarily by reed canary grass. Ponderosa pine forest community dominates the hill in the central portion of the site. The high school grounds include lawn grass and landscaping and are entirely developed.

The Icicle Irrigation Ditch flows along the northern edge of the hill. North of the hill, high groundwater is present between Titus Rd and Chumstick Hwy, including Wetland 5A described below. These water features are depicted in Figure 4 and Figure 12.

Probable wetland areas were identified by the presence of all three wetland criteria during early spring.



**Figure 12. Region 5 probable wetlands**

### 5.4.1 Wetland 5A

Wetland 5A is an approximately 3.4 acre slope wetland located on the Upper Valley MEND property, parcels 241701550133, 241701550135 and 241701550141 (Photograph 15; Figure 12) This wetland was previously delineated in 2010 by Grette Associates and verified in 2012 (Grette Associates 2010, 2012), and is currently proposed to be enhanced as a mitigation action. Though no formal data were collected as part of the current study, based on continuing independent wetland consulting work as part of Upper Valley MEND’s Meadowlark project, its wetland boundaries are consistent with those described in Grette Associates 2012. It will be enhanced to include trees and shrubs, as well as re-contoured to feature increased topographic relief and surface water. Each of the three criteria is discussed below, including both current and enhanced conditions.

#### **5.4.1.1 Vegetation**

The wetland is dominated by herbaceous species such as reed canarygrass (FACW) and small-fruited bulrush (OBL). Other non-dominant hydrophytic species include cattail (OBL), Watson's willowherb (FACW), edible thistle (FAC), English plantain (FAC), and giant lupine (FAC). The wetland contains very few shrubs, and no hydrophytic shrubs. This is consistent with the NWI characterization of the wetland as a Palustrine emergent wetland. Outside the wetland, vegetation is dominated by snowberry (FACU). Additional upland species include sweet vernal grass (FACU). Due to the predominance of hydrophytic vegetation, the criterion for wetland vegetation was satisfied on the property.

Wetland enhancement is proposed to eliminate reed canary grass and plant native trees and shrubs in the wetland and wetland buffer. Species include black cottonwood, quaking aspen, water birch (*Betula occidentalis*), coyote willow, and red osier dogwood.

#### **5.4.1.2 Hydrology**

The parcel is present in a small valley created between Ski Hill and Rattlesnake Hill. The wetland is at the bottom of this valley. Past development of surrounding parcels has created small-scale elevation gradients that essentially constrain the wetland to the subject parcel.

Wetland hydrology was difficult to determine during the site visit. No primary indicators of wetland hydrology (e.g. inundation, free water in the soil pit, or saturated soils at the surface) were observed on the property. Wetland hydrology was determined based on secondary indicators of wetland hydrology, including a positive FAC-neutral test and local soil survey information indicating hydric soil. Subsequent site visits from 2010 to 2015 have observed surface saturation within the wetland area. Based on this information, the site passes the criterion for wetland hydrology.

After enhancement, the wetland will still be fed by groundwater. However, parts of the wetland will be excavated deeper than current elevations to facilitate surface water features.

#### **5.4.1.3 Hydric Soils**

Test pits revealed low-chroma soil matrix colors in the wetland. The soil profile observed contained black (10YR 2/1) silt loam from 0-12 inches with yellowish red (5YR 5/8) redoximorphic features (distinct, few, fine). The low chroma soils and redoximorphic features observed satisfy the hydric soil criteria. Soils conditions will not be changed by future wetland enhancement.

### **5.5 REGION 6**

Region 6 encompasses the Alpensee Strasse portion of Leavenworth. The majority of Region 6 consists of residential development. Region 6 is bounded to the north and west by Chumstick Hwy, to the south by the Wenatchee River, and to the east by Chumstick Creek. Region 6 is generally relatively flat, with small topographical variations.

Much of Region 6 consists of developed residential and commercial property. Developed lots are dominated by lawn grass and landscaping, and undeveloped areas are typically characterized as Ponderosa pine forested community. The vast majority of Region 6 consists of dry upland areas.

The manmade drainage from Region 3 continues onto Region 6, where it flows on the surface along a road bed on Chelan County PUD property, then passes under the roadbed to Alpensee Strasse. At this point the water forms a wetland, before passing through another underground pipe toward the south then entering the Wenatchee River. This wetland may be man-made due to the artificial conveyance of water. Because of the wetland's location in a depression it is outside the scope of this study to attempt to determine if the area was a wetland prior to the conveyance of water to that location. These water features are depicted in Figure 4 and Figure 13.

Probable wetland areas were identified by the presence of all three wetland criteria during early spring.



Figure 13. Region 6 probable wetlands

### 5.5.1 Wetland 6A

Wetland 6A was previously delineated by Grette Associates in 2014 (Grette Associates 2014). It is an approximately 0.35 acre depressional wetland located west of Alpensee Strasse, and touches parcels 241701485125, 241701485120, and 241701410000 (Photograph 16; Figure 13). No additional data were collected as part of the current project. However, based on offsite observations and the recent field work, the extent and conditions of the wetland remain as described in Grette Associates 2014. That information is presented below relative to the three wetland criteria.

#### 5.5.1.1 Vegetation

The wetland is vegetated with emergent plant species. Dominant species include reed canarygrass (*Phalaris arundinacea* - FACW) and broadleaf cattail (*Typha latifolia* – OBL). Non-dominant plant species found within the subject wetland include: Fringed Brome (*Bromus ciliatus* – FAC) and Watson’s willowherb (*Epilobium ciliatum* – FACW). Based on the dominance of hydrophytic plant species, the vegetation criterion for a wetland is passed within the area. Upland portions of the property are also dominated by shrub species including: Snowberry (*Symphoricarpos albus* – FACU), Oregon grape (*Mahonia aquifolium* – FACU), Serviceberry, (*Amelanchier alnifolia* – FACU), and Big sagebrush (*Artemisia tridentata* - NL). Emergent upland species found on the upland portions of the property include: Reed canarygrass (*Phalaris arundinacea* – FACW) and fringed brome (*Bromus ciliatus* – FAC).

#### 5.5.1.2 Hydrology

The hydrologic support for the wetland is provided by stormwater inputs from the upland drainage basins from the Ski Hill area but may include groundwater based on its landscape position in a topographic depression bounded by an abandoned railroad bed. Drainage from the Ski Hill area is collected and conveyed in underground pipes and roadside ditches onto the PUD property. The water collects on the subject wetland and then enters a catch basin located behind Chelan County tax parcel number 241701485120 (1560 Alpensee Strasse). The catch basin collects the water and conveys it through an underground pipe to the Wenatchee River south of the subject PUD property.

Overall, the primary indicators of wetland hydrology observed include surface water (A1), high water table (A2) and saturation (A3). Thus, the hydrology criterion is passed.

#### 5.5.1.3 Hydric Soils

The soil within the wetland area is mapped as Peshastin stony loam, 0 to 25 percent slopes (PID). Soil test pits were examined to depths up to 20+ inches. Within Test Pit 3, there was a dark surface within the soil horizon that was close to meeting the “Depleted below Dark Surface (All)” hydric soil indicator. However, the lower layer did not meet the depletion criteria. As such the “other” designation for indicators of problematic hydric soils was used. Based on overall observations of soil properties within the wetland and best professional judgment, the hydric soils criterion is satisfied.

## **5.6 REGION 12**

Region 12 is located in the southwest corner of the UGA. It is bounded to the north by Region 1, to the east by Region 13, to the south by Hwy 2, and to the west by the UGA boundary. Much of Region 12 is forested Tumwater Mountain hillside, with the exception of the northeastern section, which consists of residential areas.

Vegetation in Region 12 is dominated by Ponderosa pine and Douglas fir forest communities on the Tumwater Mountain hillside. The remainder of Region 12 is developed residential areas or small orchards.

The most prominent hydrologic feature in Region 12 is a large pond that forms at the base of Tumwater Mountain from runoff. This pond then overflows seasonally and flows to the south, enters the Hwy 2 roadside ditch, and either flows east into the storm drain system, or flows west and collects in a stagnant pond at the junction of Hwy 2 and Icicle Rd. Additional wetlands are present, as depicted in Figure 4 and Figure 14.

### **5.6.1 Wetland 12A**

Wetland 12A is approximately 0.35 acre in size and is located along the toe of Tumwater Ridge west of Mountain View Drive on parcels 241711120200, 241711120245, and 241711834012 (Photograph 17; Figure 14). The wetland is present in a depression formed between Tumwater Ridge and an abandoned roadbed. Three data pits (SP 12.1 through 12.3) were dug to determine the boundaries of Wetland 12A (Figure 14). Each of the three wetland criteria is discussed below.



### **5.6.1.1 Vegetation**

Vegetation within Wetland 12A is dominated by shrubs and small trees, with a sparse undercover of herbaceous species. Hooker's willow (*Salix hookeriana*—FACW) is one of the dominant species, as is black cottonwood (FAC). Herbaceous species such as stinging nettle (*Urtica dioica*—FAC) and reed canary grass (FACW) were also common, though with relatively low percent cover due to the overstory of trees and shrubs. Upland species surrounding the wetland include snowberry (FACU) serviceberry (FACU), and some aspen (FACU). Based on the abundance of hydrophytic vegetation, the wetland vegetation criterion is passed in Wetland 12A.

### **5.6.1.2 Hydrology**

Wetland hydrology is provided by groundwater from Tumwater Ridge. The primary indicator "Sparsely Vegetated Concave Surface (B8)" was observed, as well as two secondary indicators: "Water-stained Leaves (B9)" and "Dry Season Water Table (C2)" due to groundwater observed at 22 inches in SP-12.2 during a drier-than-normal spring.

### **5.6.1.3 Hydric Soils**

Soils in Wetland 12A consist of black (2.5Y 2.5/1) gravelly loam from 0-26 inches (SP-12.2). No redox features were observed. It is assumed that the soil at SP-12.2 is saturated for at least 14 consecutive days during the growing season due to the presence of hydrophytic vegetation and relatively shallow water table (22 inches; assumed deeper than normal due to the low precipitation), and thus soils qualify as problematic hydric soils. Typical upland soils consist of black (10YR 2/1) loam from 0-16 inches with no redox features.

## **5.6.2 Wetland 12B**

Wetland 12B is an approximately 1.5 acre depression wetland, located in a large depression near the toe of Tumwater Ridge south of Marson Drive on parcels 241711130300 and 241711130320 (Photograph 18; Figure 14) The wetland consists of a pond with an emergent and scrub-shrub/forested wetland fringe. One data pit (SP 12.5) was dug to determine the presence of wetland conditions in Wetland 12B. Each of the three wetland criteria is discussed below.

### **5.6.2.1 Vegetation**

Vegetation within Wetland 12B is dominated by shrubs and trees, primarily red osier dogwood (FACW) and black cottonwood (FAC). Cattail (OBL) is present in the wetland around the open water feature. The surrounding upland is Ponderosa pine/Douglas fir forest. Based on the hydrophytic vegetation, the wetland vegetation criterion is passed in Wetland 12B.

### **5.6.2.2 Hydrology**

Wetland hydrology is provided by surface water collecting in a pond within a large depression. The primary indicator “Surface Water (A1)” was observed, which also facilitated primary indicators “High Water Table (A2)” and “Saturation (A3)”. Based on the presence of surface and ground water, the hydrology criterion is passed.

### **5.6.2.3 Hydric Soils**

Soils in Wetland 12B consist of black (10YR 2/1) silt loam from 0-20 inches (SP-12.5). No redox features were observed. It is assumed that the soil at SP-12.2 is saturated for at least 14 consecutive days during the growing season due to the presence of hydrophytic vegetation and a shallow water table (5 inches), and thus soils qualify as problematic hydric soils. No upland soil pit was dug.

### **5.6.3 Wetland 12C**

Wetland 12C is a small depressional wetland adjacent to Mine St and the Mountain Meadows Assisted Living Facility, parcel 241711120260 (Figure 15). It was previously delineated as a wetland in 2008 by Sewall Consulting (on file at the City of Leavenworth). Based on observations, conditions have not changed since that assessment and the conditions described therein are still valid.

## **5.7 REGIONS WITH NO OBSERVED PROBABLE WETLANDS**

### **5.7.1 Region 2**

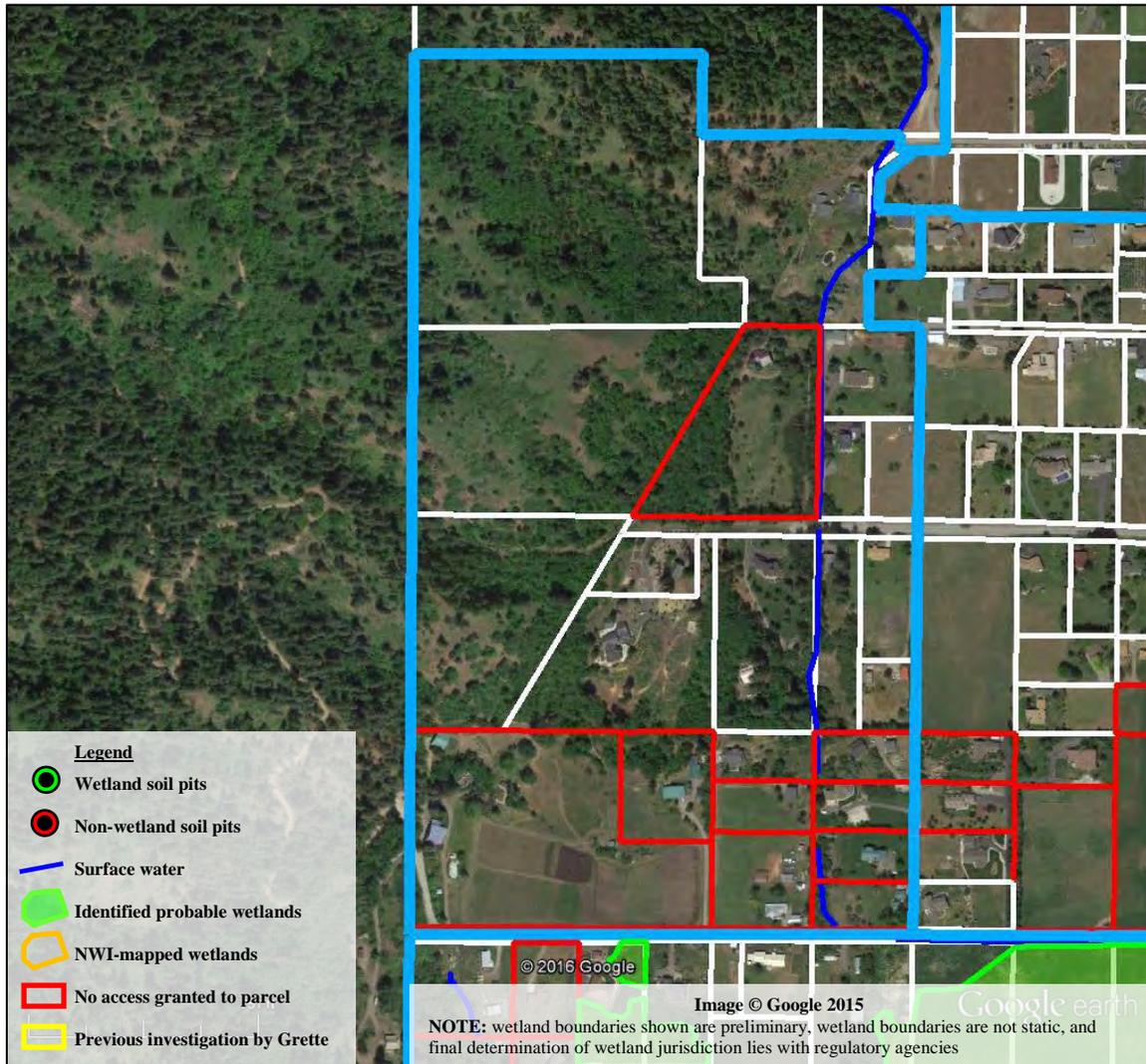
Region 2 is located north of Region 1 and west of Region 7, and is bounded to the north by the UGA boundary. The northwest corner of Region 2 encompasses forested/shrub Tumwater Mountain hillside areas, and the remainder consists of residential lots.

Depending on the aspect and land form of Tumwater Mountain, vegetation ranges from dry meadows, to dense shrub-filled draws, to conifer forest. The land cover of the portions of Region 2 that are not forested hillside or developed lots is generally mowed fields, pastures, or farm. A riparian course travels through Region 2 from north to south, surrounding a seasonal stream.

Small, seasonal streams enter Region 2 from Tumwater Mountain to the west. The seasonal stream mentioned above proceeds from a draw the mouth of which is at the northwestern corner of Region 2, then flows south. The stream is piped underground at some points, then goes sub-surface before re-emerging seasonally just north of Ranger Rd. Several small drainages appear to enter Region 2 from Tumwater Mountain at the head of Ranger Rd. One passes through a pipe under Ranger Rd into a cistern on private property, which is then piped into a roadside ditch on Ranger Rd and into the stormwater system. Other drainages continue south into Region 1.

The portions of the riparian corridor that were accessible were investigated for wetlands. No likely wetlands were observed, as upland vegetation as present down to the OHW of

the seasonal stream. Wetlands may be present in Region 2 where access was not granted by the landowners.



**Figure 15. Region 2.**

### 5.7.2 Region 7

Region 7 is located immediately east of Region 2, bounded to the east by Ski Hill Dr. Region 7 consists entirely of residential lots, many of which include large, open pastures.

Vegetation in Region 7 consists entirely of mowed lawns, landscaping, or mowed fields. Scattered trees are present as landscape features, but no true forested habitat is present.

Direct access was not obtained for much of Region 7, including almost the entire southern portion of the site (Figure 16). One parcel was investigated for the presence of wetlands (parcel 241702670128). A wetland had previously been delineated on this parcel. However, based on the results of five soil pits, no wetlands are currently present

on this parcel (see datasheets 7.1 through 7.5). Wetlands may possibly be present in the portions of Region 7 for which access was not granted.

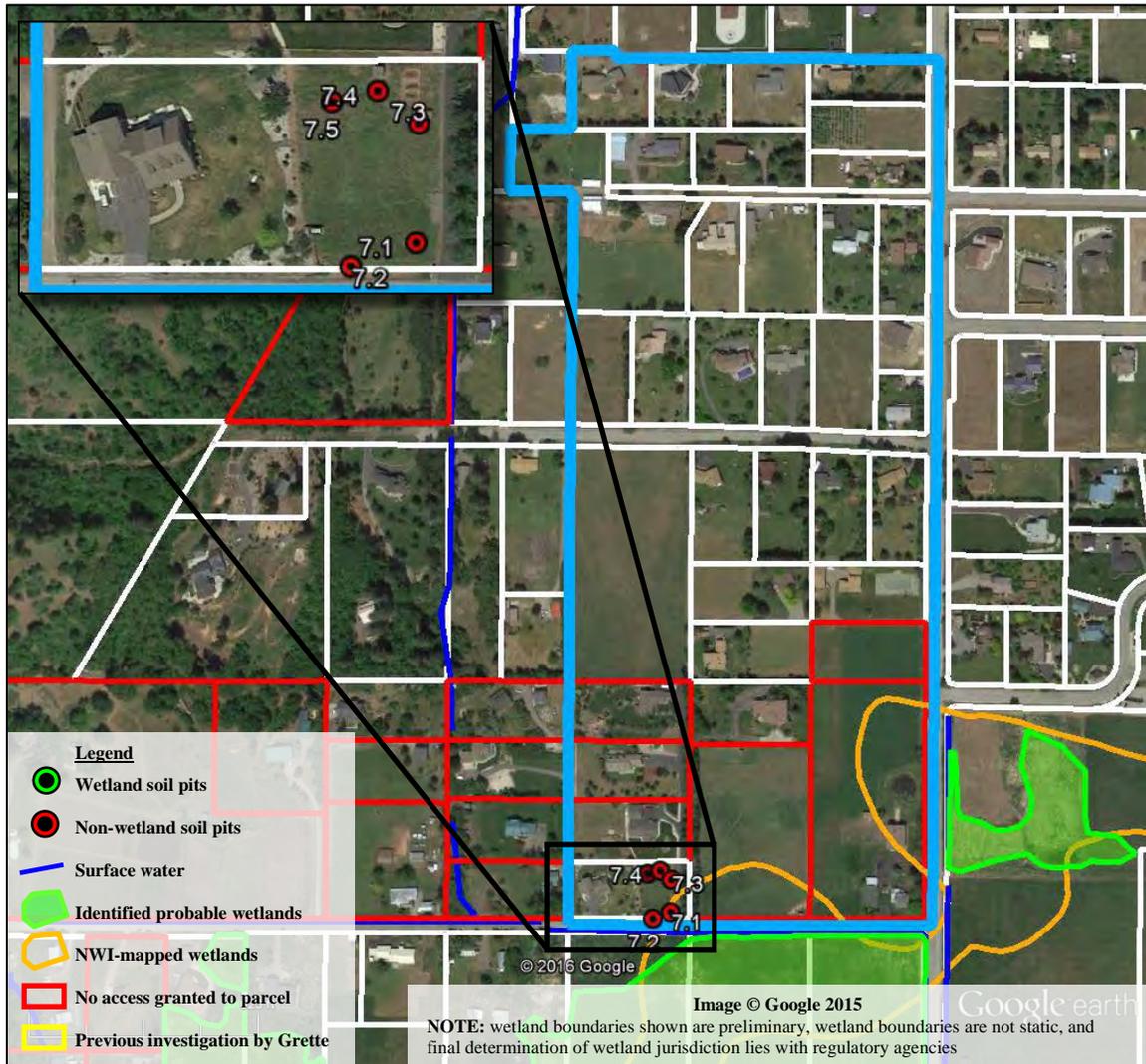


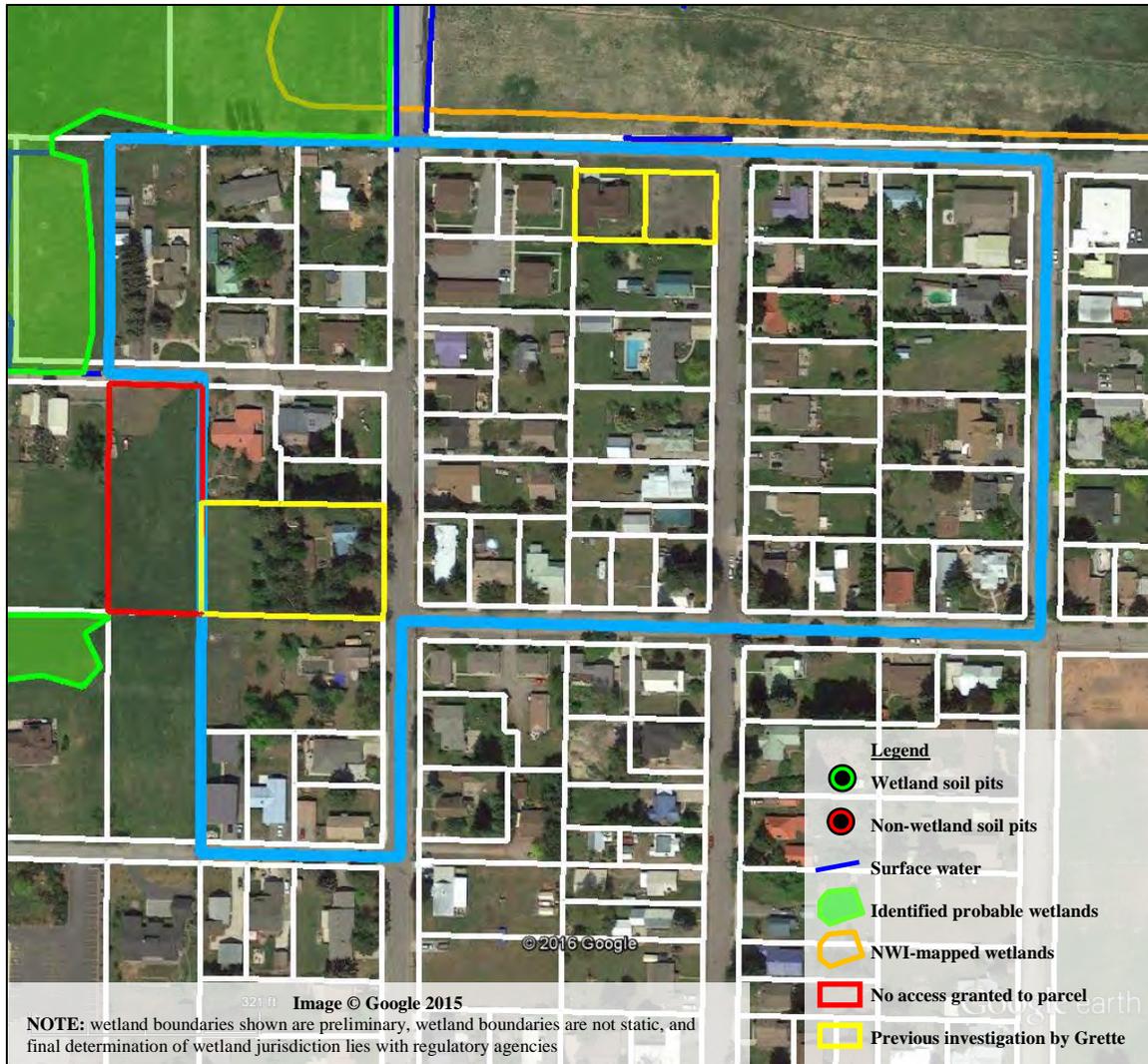
Figure 16. Region 7.

### 5.7.3 Region 8

Region 8 is located immediately east of Region 1, south of Region 3, and north of Region 13. Region 8 is entirely developed as residential property, with dense residential lots ranging from 0.14 acre up to 0.94 acre.

Vegetation in Region 8 consists entirely of mowed lawns, landscaping, or mowed fields. Scattered trees are present as landscape features, but no true forested habitat is present.

The majority of Region 8 was surveyed by aerial photographs and vehicle-based surveys, and found to be without wetlands or water features. Grette Associates previously conducted wetland investigations for two private clients within Region 8. Wetlands were not identified in either investigation.



**Figure 17. Region 8.**

### 5.7.4 Region 9

Region 9 encompasses the northern portion of the residential area between Ski Hill/Titus Rd. Its northern boundary is the UGA boundary, and its southern boundary is Region 10. The majority of Region 9 is active orchard, and the rest is residential lots. Small, isolated pockets of native forested community are present, but within the context of residential lots. The northeastern portion of Region 9 east of Titus Rd drains toward Chumstick Hwy, and thus is not part of the present study.

The Icicle Irrigation District ditch originates in Region 9, then flows underground to the south to Region 10 (Figure 18). At the time of the site investigations, an apparent leak in the irrigation ditch was flowing south to Titus Place, then east to the Titus Rd roadside ditch, but this did not appear to be a perennial water source.

The site was visually assessed for potential wetlands. Orchards are extremely unlikely to contain wetlands, and thus were assumed to be likely uplands. A constructed stormwater

swale was observed at the corner of Ski View Lane and Titus Rd. No other potential wetlands were observed in Region 9.

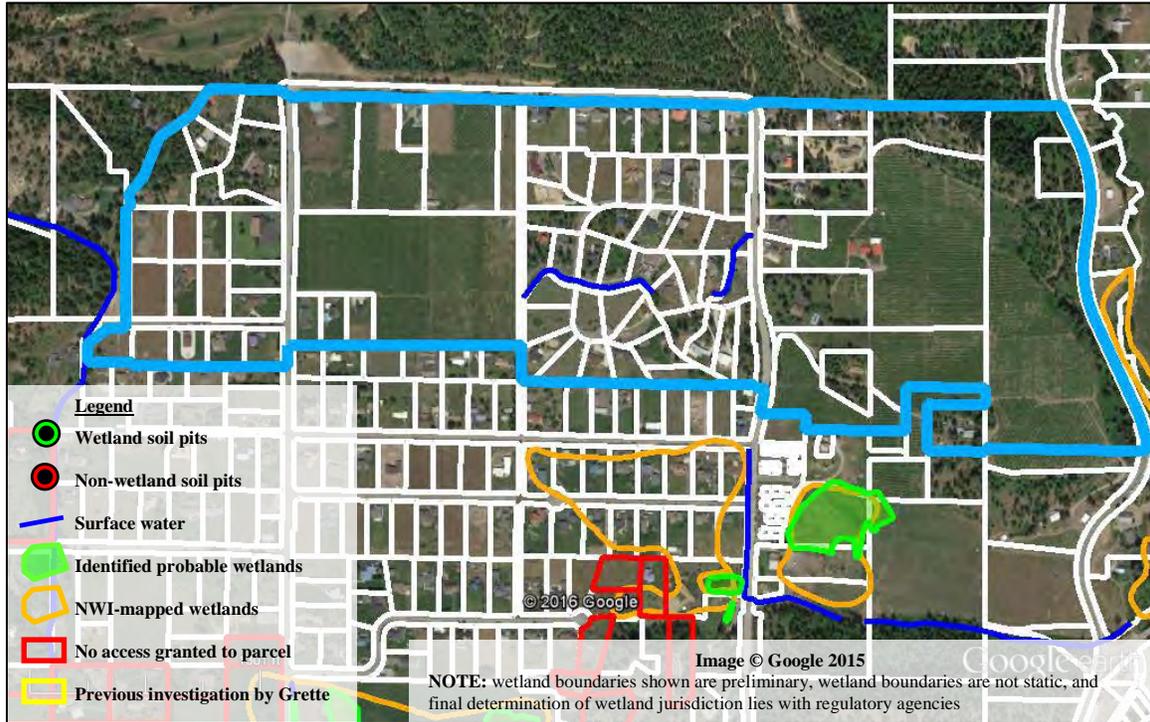


Figure 18. Region 9.

### 5.7.5 Region 10

Region 10 is directly south of Region 9, extending from Ski Hill Rd to the west to Titus Rd to the east, and to Emig Rd to the south. Region 10 consists entirely of residential lots, varying between 1 and 1.5 acres in size, with varying degrees of residential development. Vegetation consists entirely of lawns, landscaping, or vacant grass fields; no trees or shrubs are present except as landscape features. The National Wetland Inventory (NWI) shows a large wetland in Region 10, which continues south into Regions 10 and 4 (Figure 19). However, based on a visual assessment of the site, The Icicle Irrigation District ditch passes underground from Region 9 to a cistern on Detillion Rd, then into another pipe and east to the Titus Rd road side ditch and continuing south. No other water features are present. No potential wetlands were observed in Region 10.



Figure 19. Region 10.

### 5.7.6 Region 11

Region 11 is directly south of Region 10, and is bounded to the west by Ski Hill Dr., to the east by Titus Rd and Region 4, and to the south by Region 3. As with Region 10, Region 11 is completely developed as 1-1.5 acre residential lots.

Vegetation is limited to lawns, landscaped trees and shrubs, or vacant mowed grass fields.

The only surface water in Region 11 is the Icicle Irrigation District ditch that passes south along Titus Rd. As mentioned above, the NWI shows a large wetland in Region 11, which continues onto adjacent Regions 4 and 10. One soil test pit was dug (SP 11.1) in the area most likely to contain wetlands (Figure 20). This pit did not meet wetland criteria. The area north of SP 11.1 was visually surveyed, and is increasingly less likely to contain wetlands to the north. No potential wetlands were identified.

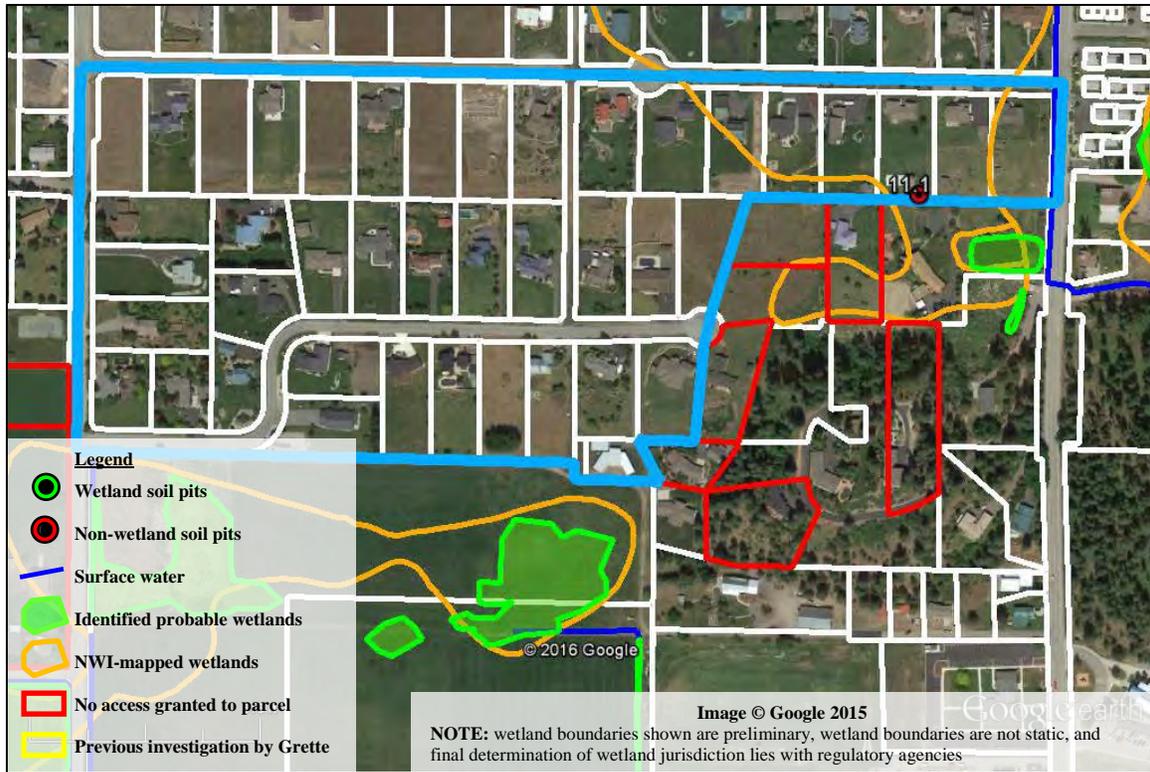


Figure 20. Region 11.

### 5.7.7 Region 13

Region 13 encompasses the majority of the residential portion of the City of Leavenworth. It is bounded by Pine St to the north, Region 1, 8, and 12 to the west, Hwy 2 to the south, and Chumstick Hwy to the east. This area is entirely developed into high-density residential land. A small portion of wetland 1A and a ditch extends into this region south of Wheeler Street which is described under Region 1. The ditch empties into a storm drain on the northwest side of the cul-de-sac at the end of O’Grady Street. Visual investigations did not identify any other surface water or potential wetlands.

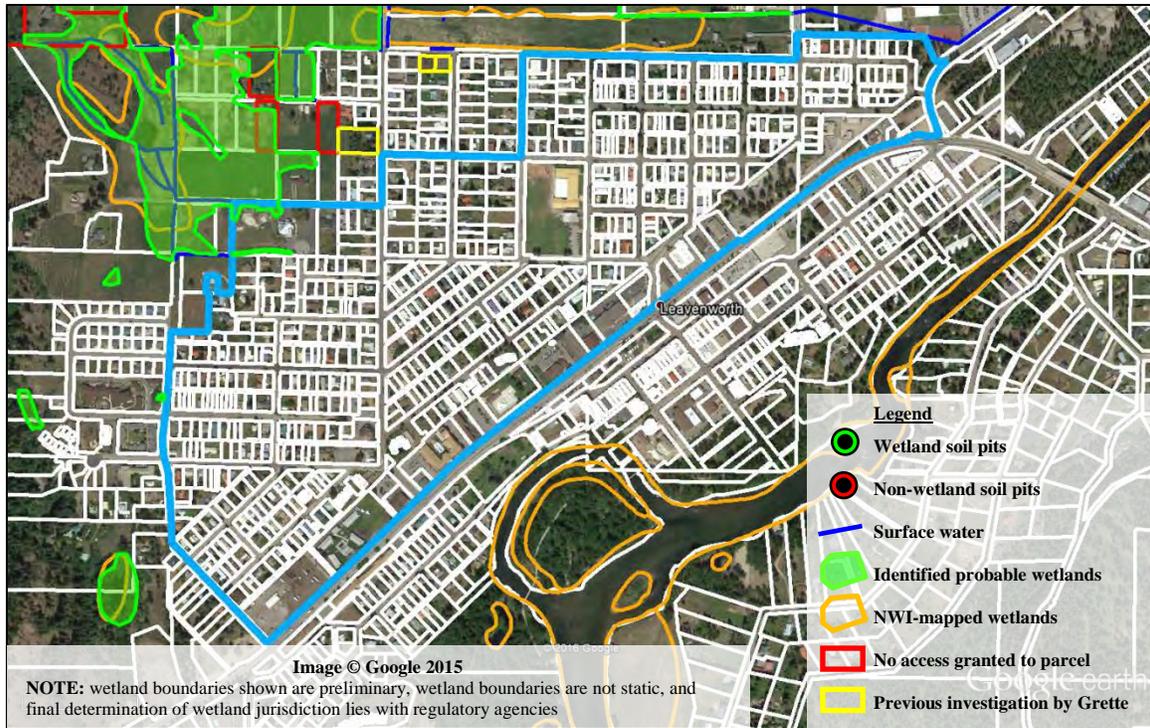


Figure 21. Region 13

## 6 DISCUSSION

### 6.1 FUNCTIONS AND VALUES

Wetlands provide a number of values and functions, such as fish and wildlife habitats, natural water quality improvement, flood storage, shoreline erosion protection and opportunities for recreation and aesthetic appreciation. Protecting wetlands can, in turn, protect our health and safety by reducing flood damage and preserving water quality. Although every wetland serves some function, the type and the degree to which a particular function is served varies from wetland to wetland.

To rate the relative functions of a certain wetland in comparison to other wetlands in the region, Ecology has developed the *Washington State Wetland Rating System for Eastern Washington - Revised* (Hruby 2014). This rating system categorizes wetlands using a function-based approach. Possible ratings range from Category I (highest-quality) to Category IV (lowest-quality). Wetlands are categorized based on their potential and opportunity to perform certain water quality, hydrologic, and habitat functions. These functions include filtering runoff, reducing flooding and erosion, and providing diverse and undisturbed habitat for a variety of wildlife species.

Ecology’s 2014 wetland rating system evaluates the three main functions of a wetland (Water Quality Improvement, Hydrologic function, and Habitat function) at three scales: “Site Potential,” “Landscape Potential,” and “Value”. A rating of High (“H”), Medium (“M”), and Low (“L”) is assigned for each scale/function, for a total of nine ratings (Table 4). Ratings are worth 3 points for “H,” 2 points for “M,” and 1 point for “L.”

These ratings are summed to generate a score for each function, which are then summed to generate an overall wetland score and category (Table 5). The functional scores and category ratings for the study area wetlands are included in Table 6.

**Table 4. Functional rating matrix**

Function	Improving Water Quality	Hydrologic	Habitat	
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	<b>Total</b>
<b>Score Based on Ratings</b>				

**Table 5. Category of wetland based on functions**

Category	Total Score
Category I	22-27
Category II	19-21
Category III	16-18
Category IV	9-15

Based on the wetland rating form, the wetland ratings within the Study Area range from **Category II to IV** (Table 6).

**Table 6. Wetland rating and categorization summary**

Wetland Name	Wetland Size (ac)	Cowardin Class	HGM Class	Water Quality	Hydrology	Habitat	Total	Category
1A	42.20	PEMC	Depressional	8	6	6	20	II
1B	0.14	PEMC	Slope	5	4	5	14	IV
3A	1.95	PEMC	Slope	7	6	5	18	III
3B	0.20	PEMC	Slope	6	5	4	15	IV
3C	1.85	PEMC	Slope	6	5	4	15	IV
Brender/ CSD Ditch	0.24	PEMK	Slope	6	4	5	15	IV
4A	0.04	PEMC	Depressional	8	6	4	18	III
4B	0.37	PUBHx	Depressional	7	6	5	18	III
5A	3.40	PEMC	Slope	7	7	5	19	II
6A	0.44	PEMC	Depressional	8	7	4	19	II
12A	0.41	PSSC	Depressional	5	4	5	14	IV
12B	1.89	PUBHx	Depressional	6	5	7	18	III
12C	0.02	PEMC	Depressional	--	--	--	--	--

In general, all wetland scored relatively low for habitat due to their presence near residential areas. Scoring for specific elements of each wetland function are determined by the Wetland Rating Forms, which are provided in Attachment 2.

## **6.2 REGULATORY CONSIDERATIONS**

Wetland buffer widths and mitigation requirements in the City of Leavenworth are determined based on the wetland rating. For the purposes of this inventory, all buffers are based on the city of Leavenworth requirements even though portions of some wetlands are in the Urban Growth Area. Standard buffer widths in association with development are presented in Section 16.08.750 of the Leavenworth Municipal Code (LMC), and are presented in Table 7 below. Buffer widths depend on other factors in addition to the category rating of the wetland, including the intensity of associated development and the score of the habitat portion of the wetland rating form. It should be noted that the LMC buffer regulations reflect the old, superseded scoring system for habitat points. WA Department of Ecology (Ecology) has published a table to convert from the old points system to the new system (WA Ecology 2014). Since the published conversion table does not include the exact habitat score brackets presented in the LMC, conversion factors have been interpolated from Ecology's table and added to Table 7 below.

Wetland buffers for each of the wetlands in the Study Area are presented in Table 8 below.

**Table 7. Wetland buffer widths (adapted from LMC Table 16.08.750.1)**

<b>Wetland Category</b>	<b>Standard Buffer Width</b>	<b>Additional buffer width if wetland scores 21 – 25 habitat points (*5-6 under the 2014 system)</b>	<b>Additional buffer width if wetland scores 26 – 29 habitat points (*7-8 under the 2014 system)</b>	<b>Additional buffer width if wetland scores 30 – 36 habitat points (*9+ under the 2014 system)</b>
Category I: Based on total score	75 ft.	Add 15 ft.	Add 45 ft.	Add 75 ft.
Category I: Forested	75 ft.	Add 15 ft.	Add 45 ft.	Add 75 ft.
Category I: Bogs	190 ft.	NA	NA	NA
Category I: Alkali	150 ft.	NA	NA	NA
Category I: Natural Heritage Wetlands	190 ft.	NA	NA	NA
Category II: Based on total score	75 ft.	Add 15 ft.	Add 45 ft.	Add 75 ft.
Category II: Vernal pool	150 ft.	NA	NA	NA
Category II: Forested	75 ft.	Add 15 ft.	Add 45 ft.	Add 75 ft.
Category III (all)	60 ft.	Add 30 ft.	Add 60 ft.	NA
Category IV (all)	40 ft.	NA	NA	NA

2 Wetland scores referred to in the table are derived from wetland rating as described in LMC [16.08.740](#), Classification – Wetland rating system.

**Table 8. Wetland rating and categorization summary**

Wetland Name	Habitat	Category	Buffer (ft)
1A	6	II	90
1B	5	IV	40
3A	5	III	90
3B	4	IV	40
3C	4	IV	40
Brender/CSD Ditch	5	IV	40
4A	4	III	60
4B	5	III	90
5A	5	II	90
6A	4	II	75
12A	5	IV	40
12B	7	III	120
12C	--	--	N/A

Except as otherwise specified, wetland buffer zones shall be retained in their natural conditions (see LMC Chapter 16.08.750 for exceptions). Filling or otherwise disturbing wetlands is generally prohibited by the City of Leavenworth. Where impacts to the wetland buffer are unavoidable, a Wetland Mitigation Plan is required pursuant to LMC 16.08.790.

Non-isolated wetlands are also regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. If the USACE were to exert jurisdiction, a Section 404 permit from the USACE would only be required if filling, grading, vegetation removal or other development activities are proposed within the limits of the wetland. USACE does not regulate wetland buffers; only proposed development that will directly impact the area within the wetland boundary. USACE also regulates other “waters of the U.S.” that do not meet the criteria to be classified as wetlands. Waters of the U.S. include lakes, rivers, streams and ditches that flow directly to other water bodies such as the Wenatchee River or Chumstick Creek. The Corps project manager for the Chelan County area should be contacted prior to any proposed activity occurring within a wetland or other water to determine if a USACE permit is necessary.

In addition, if any proposed wetland alteration requires a federal permit, an Ecology Individual 401 Water Quality Certification may be required. Ecology regulates all wetlands and Waters of the State under the State Clean Water Act (RCW 90.48) and can independently regulate wetlands and other waters even if they are not subject to the federal Clean Water Act.

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# **LEAVENWORTH REGIONAL STORMWATER PLAN**

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## **WETLAND DELINEATION REPORT**

### **PHOTOGRAPHS**



**Photograph 1. Stream feeding Wetland 1A from the northwest.**



**Photograph 2. Wetland 1A, facing north.**



**Photograph 3. Wetland 1A, facing northeast.**



**Photograph 4. Wetland 1A, facing south.**



**Photograph 5. Typical conditions within Wetland 1A.**



**Photograph 6. Wetland 1A, facing south from west of rock outcrop.**



**Photograph 7. Wetland 1B, facing north.**



**Photograph 8. Wetland 3A, facing west.**



**Photograph 9. Typical conditions within Wetland 3A.**



**Photograph 10. Wetland 3B, facing south.**



**Photograph 11. Wetland 3C, facing south.**



**Photograph 12. Wetland 3C, facing east.**



**Photograph 13. Wetland 4A**



**Photograph 14. Wetland 4B.**



**Photograph 15. Wetland 5A.**



**Photograph 16. Wetland 6A.**



**Photograph 17. Wetland 12A, facing north.**



**Photograph 18. Wetland 12B, facing south.**

# **LEAVENWORTH REGIONAL STORMWATER PLAN**

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## **WETLAND DELINEATION REPORT**

### **ATTACHMENT 1: WETLAND DATA SHEETS**

# REGION 1

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/8/15  
 Applicant/Owner: Marson 241702670140 State: WA Sampling Point: SP 1.1  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.602432° Long: -120.669280° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phalaris arundinacea</u>	<u>50</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>Scirpus microcarpus</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>																	
3. <u>Lupinus polyphyllus</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
4. <u>Typha latifolia</u>	<u>10</u>	<u>no</u>	<u>OBL</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 35%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes <input checked="" type="checkbox"/></td> <td style="width: 15%;">No <input type="checkbox"/></td> <td style="width: 35%;"></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
Remarks: *																				

**SOIL**

Sampling Point: SP 1.1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 2/1	100	_____	_____	_____	_____	silt loam	_____
8-15	10YR 3/1	100	_____	_____	_____	_____	coarse sand	_____
15-24	10YR 2/1	100	_____	_____	_____	_____	silt loam	_____
24-36+	N 2.5	100	_____	_____	_____	_____	coarse sand/gravel	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?**                      Yes        No   

Remarks: Positive alpha-alpha dipyrldyl; 1-2 redox concentrations observed in pit below +12" but too deep and less than 2 percent

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses Plants (D1) **(LRR A)**
- Other (Explain in Remarks)

- Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- 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        No        Depth (inches): 1  
 Saturation Present? (includes capillary fringe)    Yes        No        Depth (inches): 0

**Wetland Hydrology Present?**                      Yes        No   

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

Remarks: Positive alpha-alpha dipyrldyl

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/8/15  
 Applicant/Owner: Marson 241702670140 State: WA Sampling Point: SP 1.2  
 Investigator(s): J. Dirkse, R. Walker, Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.602068° Long: -120.669293° Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phleum pratense</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Phalaris arundinacea</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>																	
3. <u>Lupinus polyphyllus</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
4. <u>Taraxacum officinale</u>	<u>&lt;5</u>	<u>no</u>	<u>FACU</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes</td> <td style="width: 15%;">No</td> <td style="width: 30%;"></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	No			<input checked="" type="checkbox"/>	<input type="checkbox"/>										
<b>Hydrophytic Vegetation Present?</b>	Yes	No																		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>																		
Remarks: *																				

**SOIL**

Sampling Point: SP 1.2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-8</u>	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	<u>silt loam</u>	_____
<u>8-42+</u>	<u>N 2.5/1</u>	<u>100</u>	_____	_____	_____	_____	<u>coarse sandy loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: No redox near surface - very few (2-3 occurrences) redox concentrations 24-36+ inches; no alpha-alpha dip. reaction anywhere in pit; soil assumed saturated at least 14 consecutive days--Problematic Hydric Soil.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 8  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 5

**Wetland Hydrology Present?** Yes  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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/8/15  
 Applicant/Owner: Marson 241702670140 State: WA Sampling Point: SP 1.3  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.601355° Long: -120.669095° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
<b>Sapling/Shrub Stratum (Plot size: _____)</b>					
1. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>	
2. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>
3. _____	_____	_____	_____	OBL species _____	x1 = _____
4. _____	_____	_____	_____	FACW species _____	x2 = _____
5. _____	_____	_____	_____	FAC species _____	x3 = _____
50% = _____, 20% = _____	_____	= Total Cover		FACU species _____	x4 = _____
<b>Herb Stratum (Plot size: _____)</b>					
1. <u>Phleum pratense</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>	UPL species _____	x5 = _____
2. <u>Phalaris arundinacea</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>	Column Totals: _____ (A)	_____ (B)
3. <u>Lupinus polyphyllus</u>	<u>10</u>	<u>no</u>	<u>FAC</u>	Prevalence Index = B/A = _____	
4. <u>Vicia americana</u>	<u>5</u>	<u>no</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
5. <u>Taraxacum officinale</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
6. _____	_____	_____	_____	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
7. _____	_____	_____	_____	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
8. _____	_____	_____	_____	<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
9. _____	_____	_____	_____	<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>	
10. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
11. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
50% = _____, 20% = _____	_____	= Total Cover			
<b>Woody Vine Stratum (Plot size: _____)</b>					
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b>	
2. _____	_____	_____	_____	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____					
Remarks: *					

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-30+	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	<u>sandy loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input checked="" type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>								
Type: _____								
Depth (inches): _____					<b>Hydric Soils Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Remarks:    Very few redox features; no alpha-alpha dip. reaction; assumed saturated long enough duration to qualify as Problematic Hydric Soil.								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input checked="" type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>10</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>8</u>
		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/8/15  
 Applicant/Owner: Marson 241702670140 State: WA Sampling Point: SP 1.4  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none):      Slope (%): 0  
 Subregion (LRR): A Lat: 47.601012° Long: -120.669078° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>    </u></td> <td>x3 = <u>    </u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>    </u> (A)</td> <td><u>    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>    </u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>    </u> (A)	<u>    </u> (B)	Prevalence Index = B/A = <u>    </u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u>    </u>	x1 = <u>    </u>																			
FACW species <u>    </u>	x2 = <u>    </u>																			
FAC species <u>    </u>	x3 = <u>    </u>																			
FACU species <u>    </u>	x4 = <u>    </u>																			
UPL species <u>    </u>	x5 = <u>    </u>																			
Column Totals: <u>    </u> (A)	<u>    </u> (B)																			
Prevalence Index = B/A = <u>    </u>																				
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Phleum pratense</u>	<u>90</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>90</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
% Bare Ground in Herb Stratum <u>    </u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 10%;">No</td> <td style="width: 10%;"><input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>												
<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>																
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-27	10YR 2/1	100	_____	_____	_____	_____	silt loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: Assumed saturated <12" for more than 14 days; no alpha-alpha dipirydil reaction

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 11  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 9

**Wetland Hydrology Present?** Yes  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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/8/15  
 Applicant/Owner: Marson 241702670140 State: WA Sampling Point: SP 1.5  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.600799° Long: -120.668892° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks:			

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: <span style="float: right;">Multiply by:</span> OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% = _____, 20% = _____	_____	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Phleum pratense</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Phalaris arundinacea</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>	
3. <u>Lupinus polyphyllus</u>	<u>10</u>	<u>no</u>	<u>FAC</u>	
4. <u>Taraxacum officinale</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = _____, 20% = _____	<u>100</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
% Bare Ground in Herb Stratum _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: *				

**SOIL**

Sampling Point: SP 1.5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-17</u>	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	<u>silt loam</u>	_____
<u>17+</u>	<u>N 2.5/1</u>	<u>100</u>	_____	_____	_____	_____	<u>sandy silt loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?**      Yes       No

Remarks: Assumed saturated for long duration

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9)                      | <input type="checkbox"/> Water-Stained Leaves (B9)                 |
| <input checked="" type="checkbox"/> High Water Table (A2)          | <b>(except MLRA 1, 2, 4A, and 4B)</b>                                   | <b>(MLRA 1, 2, 4A, and 4B)</b>                                     |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Salt Crust (B11)                               | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Aquatic Invertebrates (B13)                    | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                     | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)  | <input type="checkbox"/> Geomorphic Position (D2)                  |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)                  | <input type="checkbox"/> Shallow Aquitard (D3)                     |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)     | <input type="checkbox"/> FAC-Neutral Test (D5)                     |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b> | <input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                     | <input type="checkbox"/> Frost-Heave Hummocks (D7)                 |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |   |  |

**Field Observations:**

Surface Water Present?    Yes     No     Depth (inches): \_\_\_\_\_  
 Water Table Present?    Yes     No     Depth (inches): 14  
 Saturation Present?  
 (includes capillary fringe)    Yes     No     Depth (inches): 12

**Wetland Hydrology Present?**      Yes       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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Mason 241702650085 State: WA Sampling Point: SP 1.7  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none):      Slope (%): 0  
 Subregion (LRR): A Lat: 47.599596° Long: -120.672242° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks: <b>Pit dug just north of wetland boundary as delineated by Element (2014) in upland</b>					

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u><i>Elymus repens</i></u>	<u>40</u>	<u>yes</u>	<u>FAC</u>																	
2. <u><i>Taraxacum officinale</i></u>	<u>20</u>	<u>yes</u>	<u>FACU</u>																	
3. <u><i>Phalaris arundinacea</i></u>	<u>30</u>	<u>yes</u>	<u>FACW</u>																	
4. <u><i>Lupinus polyphyllus</i></u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
Remarks: *																				



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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Mason 241702650085 State: WA Sampling Point: SP 1.7  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none):      Slope (%):       
 Subregion (LRR): A Lat: 47.599148° Long: -120.672278° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>    </u></td> <td>x3 = <u>    </u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>    </u> (A)</td> <td><u>    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>    </u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>    </u> (A)	<u>    </u> (B)	Prevalence Index = B/A = <u>    </u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u>    </u>	x1 = <u>    </u>																			
FACW species <u>    </u>	x2 = <u>    </u>																			
FAC species <u>    </u>	x3 = <u>    </u>																			
FACU species <u>    </u>	x4 = <u>    </u>																			
UPL species <u>    </u>	x5 = <u>    </u>																			
Column Totals: <u>    </u> (A)	<u>    </u> (B)																			
Prevalence Index = B/A = <u>    </u>																				
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Phleum pratense</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Phalaris arundinacea</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>																	
3. <u>Unidentified</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
4. <u>Juncus effusus</u>	<u>10</u>	<u>no</u>	<u>FACW</u>																	
5. <u>Taraxacum officinale</u>	<u>5</u>	<u>no</u>	<u>FACU</u>																	
6. <u>Lupinus polyphyllus</u>	<u>5</u>	<u>no</u>	<u>FAC</u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
% Bare Ground in Herb Stratum <u>    </u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes <input checked="" type="checkbox"/></td> <td style="width: 15%;">No <input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
Remarks: *																				

Project Site: \_\_\_\_\_

Sampling Point: SP 1.7

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-24	10YR 2/1	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: Assumed saturated 12" for >14 days; no alpha-alpha diiridyl. reaction

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 1  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 0

**Wetland Hydrology Present?** Yes  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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Mason 241702650085 State: WA Sampling Point: SP 1.8  
 Investigator(s): J. Dirkse; J. Sanford; Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): convex Slope (%): 0  
 Subregion (LRR): A Lat: 47.598973° Long: -120.672965° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Pit located on elevated area within wetland.</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>50</u> (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species <u>60</u>	x3 = <u>180</u>
5. _____	_____	_____	_____	FACU species <u>40</u>	x4 = <u>160</u>
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
<b>Herb Stratum (Plot size: _____)</b>				Column Totals:	<u>100</u> (A) <u>340</u> (B)
1. <u>Achillea millefolium</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	Prevalence Index = B/A = <u>3.4</u>	
2. <u>Elymus repens</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
3. <u>Poa pratensis</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>		
4. <u>Lactuca serriola</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
<b>Woody Vine Stratum (Plot size: _____)</b>					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____					
Remarks: *					



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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/14/15  
 Applicant/Owner: Motteler 241702650090 State: WA Sampling Point: SP 1.9  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): \_\_\_\_\_  
 Subregion (LRR): A Lat: 47.599432° Long: -120.673693° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Phleum pratense</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Vicia americana</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Claytonia lanceolata</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
4. <u>Phalarus arundinacea</u>	<u>10</u>	<u>no</u>	<u>FACW</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				

Remarks: \*

**SOIL**

Sampling Point: SP 1.9

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 2/1	100	_____	_____	_____	_____	gravelly loam	_____
20-28+	5Y 3/1	100	_____	_____	_____	_____	silty grav. sand coarse	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

**Hydric Soils Present?**      Yes       No

Remarks: Iron nodules observed from 20" and below

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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     No     Depth (inches): 27  
 Saturation Present?    Yes     No     Depth (inches): 23  
 (includes capillary fringe)

**Wetland Hydrology Present?**      Yes       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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/14/15  
 Applicant/Owner: Motteler 241702650090 State: WA Sampling Point: SP 1.10  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Hillslope (slight) Local relief (concave, convex, none): none Slope (%):       
 Subregion (LRR): A Lat: 47.599589° Long: -120.673626° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: <b>Pit on the shoulder of a low berm-like feature</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>    </u></td> <td>x3 = <u>    </u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>    </u> (A)</td> <td><u>    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>    </u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>    </u> (A)	<u>    </u> (B)	Prevalence Index = B/A = <u>    </u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u>    </u>	x1 = <u>    </u>																			
FACW species <u>    </u>	x2 = <u>    </u>																			
FAC species <u>    </u>	x3 = <u>    </u>																			
FACU species <u>    </u>	x4 = <u>    </u>																			
UPL species <u>    </u>	x5 = <u>    </u>																			
Column Totals: <u>    </u> (A)	<u>    </u> (B)																			
Prevalence Index = B/A = <u>    </u>																				
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Unid grass</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Phleum pratense</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Taraxacum officinale</u>	<u>&lt;5</u>	<u>no</u>	<u>FACU</u>																	
4. <u>Potentilla recta</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>																	
5. <u>Scirpus microcarpus</u>	<u>&lt;5</u>	<u>no</u>	<u>OBL</u>																	
6. <u>Lupinus polyphyllus</u>	<u>&lt;5</u>	<u>no</u>	<u>FAC</u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
% Bare Ground in Herb Stratum <u>    </u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 10%;">No</td> <td style="width: 10%;"><input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>												
<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>																

Remarks: \*

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 2/1	100	_____	_____	_____	_____	_____	_____
12-24+	2.5Y 2.5/1	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: Positive (faint) alpha-alpha dip. reaction beginning 4" BGS; nodules observed ~12"

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 4  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 0

**Wetland Hydrology Present?** Yes  No

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

Remarks: Positive alpha-alpha dip. reaction beginning 4" BGS

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/14/15  
 Applicant/Owner: Motteler 241702650090 State: WA Sampling Point: SP 1.11  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Hillslope (slight) Local relief (concave, convex, none): none Slope (%):       
 Subregion (LRR): A Lat: 47.599272° Long: -120.673810° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>    </u></td> <td>x3 = <u>    </u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>    </u> (A)</td> <td><u>    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>    </u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>    </u> (A)	<u>    </u> (B)	Prevalence Index = B/A = <u>    </u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u>    </u>	x1 = <u>    </u>																			
FACW species <u>    </u>	x2 = <u>    </u>																			
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Column Totals: <u>    </u> (A)	<u>    </u> (B)																			
Prevalence Index = B/A = <u>    </u>																				
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>    </u>	<u>FACW</u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
% Bare Ground in Herb Stratum <u>    </u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;">No</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> <td></td> <td></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	No					<input checked="" type="checkbox"/>	<input type="checkbox"/>								
<b>Hydrophytic Vegetation Present?</b>	Yes	No																		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>																		
Remarks: *																				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-15	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	_____	_____
15-18	<u>2.5Y 2.5/1</u>	<u>90</u>	<u>7.5Y 3/4</u>	<u>10</u>	<u>C</u>	<u>M, PL</u>	_____	_____
18-24+	<u>2.5Y 4/1</u>	<u>80</u>	<u>7.5YR 3/4</u>	<u>20</u>	<u>C</u>	<u>M, PL</u>	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input checked="" type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Depleted Dark Surface (F7)					
			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>								
Type: _____								
Depth (inches): _____					<b>Hydric Soils Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Remarks:    Assuming saturated >14 consecutive days--Problematic Hydric Soil								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input checked="" type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>12</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>8</u>
		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:    Oxidized rhizospheres begin ~15"; no alpha-alpha dip. reaction above 12"			

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.12  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%):       
 Subregion (LRR): A Lat: 47.598829° Long: -120.673845° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>    </u></td> <td>x3 = <u>    </u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>    </u> (A)</td> <td><u>    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>    </u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>    </u> (A)	<u>    </u> (B)	Prevalence Index = B/A = <u>    </u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u>    </u>	x1 = <u>    </u>																			
FACW species <u>    </u>	x2 = <u>    </u>																			
FAC species <u>    </u>	x3 = <u>    </u>																			
FACU species <u>    </u>	x4 = <u>    </u>																			
UPL species <u>    </u>	x5 = <u>    </u>																			
Column Totals: <u>    </u> (A)	<u>    </u> (B)																			
Prevalence Index = B/A = <u>    </u>																				
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Phleum pratense</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Taraxacum officinale</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>																	
3. <u>Trifolium repens</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
% Bare Ground in Herb Stratum <u>    </u>																				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				

Remarks: \*grazed pasture

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 2/1	100					loam	
6-11	10YR 2/1	95	10YR 4/3	5	C	M, PL	loam	
11-16	2.5Y 3/2	80	10YR 4/3	20	C	M, PL	sand	
16-27	10YR 2/1	95	10YR 4/3	5	C	M, PL	loam	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 3  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 2.5

**Wetland Hydrology Present?** Yes  No

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

Remarks: positive alpha-alpha dip. @ 3" BGS

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.13  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%):       
 Subregion (LRR): A Lat: 47.598842° Long: -120.673065° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: <b>Grazed pasture</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b> Total % Cover of: <u>    </u> Multiply by: OBL species <u>    </u> x1 = <u>    </u> FACW species <u>    </u> x2 = <u>    </u> FAC species <u>    </u> x3 = <u>    </u> FACU species <u>    </u> x4 = <u>    </u> UPL species <u>    </u> x5 = <u>    </u> Column Totals: <u>    </u> (A) <u>    </u> (B) Prevalence Index = B/A = <u>    </u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>    </u> )				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		
<u>Herb Stratum</u> (Plot size: <u>    </u> )				
1. <u>Phleum pratense</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Taraxacum officinale</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
3. <u>Trifolium repens</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>	
4. <u>Unid. Mosses</u>	<u>20</u>	<u>yes</u>	<u>    </u>	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
50% = <u>    </u> , 20% = <u>    </u>	<u>100</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: <u>    </u> )				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		
% Bare Ground in Herb Stratum <u>    </u>				

Remarks: \*grazed pasture

Project Site: \_\_\_\_\_

Sampling Point: SP 1.13

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-11	10YR 2/1	100	_____	_____	_____	_____	_____	_____
11-23	10YR 4/2	85	10YR 4/4	15	C	M	_____	_____
23+	10YR 2/1	95	10YR 4/4	5	C	M	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

**Hydric Soils Present?**      Yes        No   

Remarks:    Problematic soils: positive alpha-alpha dipyritydyl @ 3 - 10" BGS

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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        No        Depth (inches): 2.5  
 Saturation Present? (includes capillary fringe)    Yes        No        Depth (inches): 2

**Wetland Hydrology Present?**      Yes        No   

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

Remarks:    positive alpha-alpha dipyritydyl @ 3 - 10" BGS

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.14  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R7 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%):       
 Subregion (LRR): A Lat: 47.598883° Long: -120.672651° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: <b>Grazed pasture</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>    </u></td> <td>x3 = <u>    </u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>    </u> (A)</td> <td><u>    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>    </u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>    </u> (A)	<u>    </u> (B)	Prevalence Index = B/A = <u>    </u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u>    </u>	x1 = <u>    </u>																			
FACW species <u>    </u>	x2 = <u>    </u>																			
FAC species <u>    </u>	x3 = <u>    </u>																			
FACU species <u>    </u>	x4 = <u>    </u>																			
UPL species <u>    </u>	x5 = <u>    </u>																			
Column Totals: <u>    </u> (A)	<u>    </u> (B)																			
Prevalence Index = B/A = <u>    </u>																				
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Phleum pratense</u>	<u>95</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Lupinus polyphyllus</u>	<u>5</u>	<u>no</u>	<u>FAC</u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
% Bare Ground in Herb Stratum <u>    </u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 10%;">No</td> <td style="width: 10%;"><input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>												
<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>																
Remarks: *																				

Project Site: \_\_\_\_\_

Sampling Point: SP 1.14

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 2/1	100	_____	_____	_____	_____	_____	_____
8-16	2.5Y 3/1	100	_____	_____	_____	_____	_____	_____
16-24	10YR 2/1	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

**Hydric Soils Present?**      Yes        No   

Remarks:    Problematic soils: positive alpha-alpha dipirydil @ 0-6" BGS; assumed saturated >14 consecutive days

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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        No        Depth (inches): 3  
 Saturation Present? (includes capillary fringe)    Yes        No        Depth (inches): 0

**Wetland Hydrology Present?**      Yes        No   

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

Remarks:    positive alpha-alpha dipirydil @ 0-6" BGS; assumed saturated >14 consecutive days

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.15  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%):       
 Subregion (LRR): A Lat: 47.598671° Long: -120.672711° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: <b>Grazed pasture</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>    </u></td> <td>x3 = <u>    </u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>    </u> (A)</td> <td><u>    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>    </u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>    </u> (A)	<u>    </u> (B)	Prevalence Index = B/A = <u>    </u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u>    </u>	x1 = <u>    </u>																			
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Column Totals: <u>    </u> (A)	<u>    </u> (B)																			
Prevalence Index = B/A = <u>    </u>																				
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Phleum pratense</u>	<u>100</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
% Bare Ground in Herb Stratum <u>    </u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 10%;">No</td> <td style="width: 10%;"><input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>												
<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>																
Remarks: <u>*grazed field</u>																				



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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.16  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%):       
 Subregion (LRR): A Lat: 47.598096° Long: -120.672517° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: <b>Grazed pasture</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>    </u></td> <td>x3 = <u>    </u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>    </u> (A)</td> <td><u>    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>    </u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>    </u> (A)	<u>    </u> (B)	Prevalence Index = B/A = <u>    </u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u>    </u>	x1 = <u>    </u>																			
FACW species <u>    </u>	x2 = <u>    </u>																			
FAC species <u>    </u>	x3 = <u>    </u>																			
FACU species <u>    </u>	x4 = <u>    </u>																			
UPL species <u>    </u>	x5 = <u>    </u>																			
Column Totals: <u>    </u> (A)	<u>    </u> (B)																			
Prevalence Index = B/A = <u>    </u>																				
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Phleum pratense</u>	<u>90</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Taraxacum officinale</u>	<u>5</u>	<u>no</u>	<u>FACU</u>																	
3. <u>Lamium purpureum</u>	<u>5</u>	<u>no</u>	<u>FACU</u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
% Bare Ground in Herb Stratum <u>    </u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes <input checked="" type="checkbox"/></td> <td style="width: 10%;">No <input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		

Remarks: \*

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-19	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	_____	_____
19-22	<u>2.5Y 3/1</u>	<u>90</u>	<u>10YR 4/4</u>	<u>10</u>	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input checked="" type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>					<b>Hydric Soils Present?</b>			
Type: _____					Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Depth (inches): _____								
Remarks: No alpha-alpha dipyriddy reaction; assumed saturated >14 consecutive days								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): _____	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>14</u>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>10</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			



**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-9</u>	<u>10YR 2/1</u>	<u>95</u>	<u>10YR 3/3</u>	<u>5</u>	_____	_____	_____	_____
<u>9-9.5</u>	<u>10YR 7/1</u>	<u>100</u>	_____	_____	_____	_____	_____	<u>very narrow layer</u>
<u>9.5-17</u>	<u>2.5Y 3/1</u>	<u>70</u>	<u>10YR 4/4</u>	<u>30</u>	_____	_____	_____	_____
<u>17-24</u>	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix			
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input checked="" type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>					<b>Hydric Soils Present?</b>			
Type: _____					Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Depth (inches): _____								
Remarks:								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input checked="" type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>5.5</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>5</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: <u>alpha-alpha dipyriddy reaction 0-9" BGS</u>			

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702670365 State: WA Sampling Point: SP 1.18  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.598198° Long: -120.675037° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants**

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Poa pratensis</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Elymus repens</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
Remarks:				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																

Remarks: \_\_\_\_\_

Project Site: \_\_\_\_\_

Sampling Point: SP 1.18

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-24	10YR 2/1	100	_____	_____	_____	_____	loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?**      Yes      No  

Remarks:    no alpha-alpha dipyridyl reaction

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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      No       Depth (inches): 20  
 Saturation Present?    Yes      No       Depth (inches): 18  
 (includes capillary fringe)

**Wetland Hydrology Present?**      Yes      No  

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

Remarks:    no alpha-alpha dipyridyl reaction

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.19  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.598140° Long: -120.674261° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

### VEGETATION – Use scientific names of plants

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>			
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	1 (A)		
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	1 (B)		
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	100 (A/B)		
4. _____	_____	_____	_____				
50% = _____, 20% = _____	_____	= Total Cover					
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Prevalence Index worksheet:</b>			
1. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>		
2. _____	_____	_____	_____	OBL species _____	x1 = _____		
3. _____	_____	_____	_____	FACW species _____	x2 = _____		
4. _____	_____	_____	_____	FAC species _____	x3 = _____		
5. _____	_____	_____	_____	FACU species _____	x4 = _____		
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____		
<u>Herb Stratum</u> (Plot size: _____)				Column Totals: _____ (A)	_____ (B)		
1. <i>Phalaris arundinacea</i>	100	yes	FACW	Prevalence Index = B/A = _____			
2. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
3. _____	_____	_____	_____				
4. _____	_____	_____	_____				
5. _____	_____	_____	_____				
6. _____	_____	_____	_____				
7. _____	_____	_____	_____				
8. _____	_____	_____	_____				
9. _____	_____	_____	_____				
10. _____	_____	_____	_____				
11. _____	_____	_____	_____				
50% = _____, 20% = _____	100	= Total Cover					
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b>			
1. _____	_____	_____	_____			Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
2. _____	_____	_____	_____				
50% = _____, 20% = _____	_____	= Total Cover					
% Bare Ground in Herb Stratum _____							
Remarks: *							

**SOIL**

Sampling Point: SP 1.19

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-17	10YR 2/1	100	_____	_____	_____	_____	loam	_____
17-18	10YR 6/2	100	_____	_____	_____	_____	sand	_____
18-24	2.5Y 2.5/1	95	10YR 4/4	5	c	m	sandy loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: Problematic soils: alpha-alpha dip. reaction 1" BGS and down; assumed saturated for greater than than 14 consecutive days

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 2  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 0

**Wetland Hydrology Present?** Yes  No

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

Remarks: alpha-alpha dip. reaction 1" BGS and down; assumed saturated for greater than than 14 consecutive days

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.20  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.598882° Long: -120.675206° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: <b>Pit very close to wetland boundary</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum (Plot size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum (Plot size: _____)</u>																				
1. <u>Poa pratensis</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Elymus repens</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>50</u>	= Total Cover																		
<u>Woody Vine Stratum (Plot size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes</td> <td style="width: 15%;">No</td> <td style="width: 30%;"></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	No			<input checked="" type="checkbox"/>	<input type="checkbox"/>										
<b>Hydrophytic Vegetation Present?</b>	Yes	No																		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>																		
Remarks: _____																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-24	10YR 2/1	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: no alpha-alpha dip. reaction; due to time of year and closeness of water to 12" BGS, assumed not to be saturated >14 consecutive days.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 13  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 11

**Wetland Hydrology Present?** Yes  No

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

Remarks: no alpha-alpha dip. reaction

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.21  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.598852° Long: -120.674628° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	2 (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	2 (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	100 (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
<u>Sapling/Shrub Stratum (Plot size: _____)</u>				<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
<u>Herb Stratum (Plot size: _____)</u>				Column Totals: _____ (A)	_____ (B)
1. <u>Poa pratensis</u>	30	yes	FAC	Prevalence Index = B/A = _____	
2. <u>Phalaris arundinacea</u>	50	yes	FACW		
3. <u>Cirsium arvense</u>	10	no	FAC		
4. <u>Lupinus polyphyllus</u>	10	no	FAC		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	100	= Total Cover			
<u>Woody Vine Stratum (Plot size: _____)</u>				<b>Hydrophytic Vegetation Indicators:</b>	
1. _____	_____	_____	_____	<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
2. _____	_____	_____	_____	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
50% = _____, 20% = _____	_____	= Total Cover		<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
% Bare Ground in Herb Stratum _____				<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>	
				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: *					

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 2/1	95	10YR 4/4	5	_____	_____	loam	_____
12-16	2.5Y 3/1	90	10YR 4/4	10	_____	_____	sand	_____
16-24	10YR 2/1	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 12  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 9

**Wetland Hydrology Present?** Yes  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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.23  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): convex Slope (%): 1  
 Subregion (LRR): A Lat: 47.600138° Long: -120.674534° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Burch fine sandy loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>50</u> (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
<u>Sapling/Shrub Stratum (Plot size: _____)</u>				<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species <u>0</u>	x1 = <u>0</u>
3. _____	_____	_____	_____	FACW species <u>0</u>	x2 = <u>0</u>
4. _____	_____	_____	_____	FAC species <u>60</u>	x3 = <u>180</u>
5. _____	_____	_____	_____	FACU species <u>20</u>	x4 = <u>80</u>
50% = _____, 20% = _____	_____	= Total Cover		UPL species <u>20</u>	x5 = <u>100</u>
<u>Herb Stratum (Plot size: _____)</u>				Column Totals:	<u>100</u> (A) <u>360</u> (B)
1. <u>Potentilla recta</u>	<u>20</u>	<u>yes</u>	<u>UPL</u>	Prevalence Index = B/A = <u>3.6</u>	
2. <u>Achillea millefolium</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b>	
3. <u>Claytonia lanceolata</u>	<u>10</u>	<u>no</u>	<u>FAC</u>		
4. <u>Vicia americana</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>		
5. <u>Elymus repens</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____	<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
8. _____	_____	_____	_____	<input type="checkbox"/> 2 - Dominance Test is >50%	
9. _____	_____	_____	_____	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
10. _____	_____	_____	_____	<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
11. _____	_____	_____	_____	<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>	
50% = _____, 20% = _____	<u>100</u>	= Total Cover		<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<u>Woody Vine Stratum (Plot size: _____)</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
% Bare Ground in Herb Stratum _____					
Remarks: *					

**SOIL**

Sampling Point: SP 1.23

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-13</u>	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	<u>gravelly loam</u>	_____
<u>13-25</u>	<u>10YR 2/1</u>	<u>97</u>	<u>10YR 4/3</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>coarse sandy loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

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  No  Depth (inches): 25  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 23

**Wetland Hydrology Present?** Yes  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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.24  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slight drainage Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): A Lat: 47.600131° Long: -120.674688° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	1 (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	1 (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	100 (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
<b>Herb Stratum (Plot size: _____)</b>				Column Totals: _____ (A)	_____ (B)
1. <i>Phalaris arundinacea</i>	100	yes	FACW	Prevalence Index = B/A = _____	
2. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b>	
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	100	= Total Cover			
<b>Woody Vine Stratum (Plot size: _____)</b>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____					
Remarks: *					

**SOIL**

Sampling Point: SP 1.24

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-6</u>	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	<u>sandy gravelly loam</u>	_____
<u>6-24</u>	<u>10YR 2/1</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>sandy gravelly loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 5  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 1

**Wetland Hydrology Present?** Yes  No

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

Remarks: no alpha-alpha dip. reaction

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.25  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 2  
 Subregion (LRR): A Lat: 47.600304° Long: -120.674234° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

### VEGETATION – Use scientific names of plants

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
<u>Tree Stratum</u> (Plot size: _____)				<b>Dominance Test Worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Phleum pratense</u>	<u>15</u>	<u>no</u>	<u>FAC</u>																	
2. <u>Poa pratensis</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Lupinus polyphyllus</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
4. <u>Equisetum arvense</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
5. <u>Hydrophyllum capitatum</u>	<u>15</u>	<u>no</u>	<u>UPL</u>																	
6. <u>Phalaris arundinacea</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
Remarks: *																				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	_____	_____
8-24	<u>2.5Y 3/1</u>	<u>80</u>	<u>10YR 3/4</u>	<u>20</u>	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input checked="" type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>					<b>Hydric Soils Present?</b>			
Type: _____					Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Depth (inches): _____								
Remarks:    no alpha-alpha dip. reaction								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input checked="" type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):    _____	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Water Table Present?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>10</u>		
Saturation Present? (includes capillary fringe)    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>8</u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:    no alpha-alpha dip. reaction			

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.26  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slight ridge Local relief (concave, convex, none): convex Slope (%):       
 Subregion (LRR): A Lat: 47.600675° Long: -120.674663° Datum:       
 Soil Map Unit Name: Burch fine sandy loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Pit dug in local depression among upland</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>80</u></td> <td>x3 = <u>240</u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>20</u></td> <td>x5 = <u>100</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>340</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.4</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>80</u>	x3 = <u>240</u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>20</u>	x5 = <u>100</u>	Column Totals: <u>100</u> (A)	<u>340</u> (B)	Prevalence Index = B/A = <u>3.4</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u>    </u>	x1 = <u>    </u>																			
FACW species <u>    </u>	x2 = <u>    </u>																			
FAC species <u>80</u>	x3 = <u>240</u>																			
FACU species <u>    </u>	x4 = <u>    </u>																			
UPL species <u>20</u>	x5 = <u>100</u>																			
Column Totals: <u>100</u> (A)	<u>340</u> (B)																			
Prevalence Index = B/A = <u>3.4</u>																				
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Elymus repens</u>	<u>80</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Potentilla recta</u>	<u>20</u>	<u>yes</u>	<u>NL (UPL)</u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
% Bare Ground in Herb Stratum <u>    </u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes <input type="checkbox"/></td> <td style="width: 10%;">No <input checked="" type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>																		
Remarks: *																				

Project Site: \_\_\_\_\_

Sampling Point: SP 1.26

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-22</u>	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	_____	_____
<u>22-24</u>	<u>2.5Y 3/1</u>	<u>95</u>	<u>2.5Y 4/4</u>	<u>5</u>	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 16  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 14

**Wetland Hydrology Present?** Yes  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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.27  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T25 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 2  
 Subregion (LRR): A Lat: 47.600647° Long: -120.675007° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	4 (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	6 (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	67 (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
Sapling/Shrub Stratum (Plot size: _____)				<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
Herb Stratum (Plot size: _____)				Column Totals: _____ (A)	_____ (B)
1. <u>Elymus repens</u>	20	yes	FAC	Prevalence Index = B/A = _____	
2. <u>Vicia americana</u>	20	yes	FAC	<b>Hydrophytic Vegetation Indicators:</b>	
3. <u>Potentilla recta</u>	10	yes	NL (UPL)		
4. <u>Claytonia lanceolata</u>	5	no	FAC		
5. <u>Equisetum arvense</u>	15	yes	FAC		
6. <u>Hydrophyllum capitatum</u>	10	yes	NL (UPL)		
7. <u>Poa pratensis</u>	20	yes	FAC		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	100	= Total Cover			
Woody Vine Stratum (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
Remarks: *					

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	_____	_____
8-24	<u>2.5Y 3/1</u>	<u>95</u>	<u>10YR 3/4</u>	<u>5</u>	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input checked="" type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>					<b>Hydric Soils Present?</b>			
Type: _____					Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Depth (inches): _____								
Remarks:								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input checked="" type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Water Table Present?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>11</u>		
Saturation Present? (includes capillary fringe)    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>9</u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:    positive alpha-alpha dip. reaction 9-17" BGS			

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.28  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 2  
 Subregion (LRR): A Lat: 47.599448° Long: -120.675099° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Remarks: <b>Motteler property, near east toe of rock outcrop</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species <u>70</u></td> <td>x3 = <u>210</u></td> </tr> <tr> <td>FACU species <u>60</u></td> <td>x4 = <u>240</u></td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: <u>130</u> (A)</td> <td><u>450</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.46</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species <u>70</u>	x3 = <u>210</u>	FACU species <u>60</u>	x4 = <u>240</u>	UPL species _____	x5 = _____	Column Totals: <u>130</u> (A)	<u>450</u> (B)	Prevalence Index = B/A = <u>3.46</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species <u>70</u>	x3 = <u>210</u>																			
FACU species <u>60</u>	x4 = <u>240</u>																			
UPL species _____	x5 = _____																			
Column Totals: <u>130</u> (A)	<u>450</u> (B)																			
Prevalence Index = B/A = <u>3.46</u>																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. <u>Symphoricarpos albus</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>30</u>	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Pteridium aquilinum</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>																	
2. <u>Poa pratensis</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Equisetum arvense</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes <input type="checkbox"/></td> <td style="width: 10%;">No <input checked="" type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>																		
Remarks: *																				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	_____	_____
10-20	<u>10YR 4/2</u>	<u>100</u>	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>								
Type: _____						Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Depth (inches): _____								
Remarks: no alpha-alpha dip. reaction								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input checked="" type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>2</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>1</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: no alpha-alpha dip. reaction			

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.29  
 Investigator(s): J. Dirkse, J. Sanford: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): concave Slope (%):       
 Subregion (LRR): A Lat: 47.599909° Long: -120.674230° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>    </u></td> <td>x3 = <u>    </u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>    </u> (A)</td> <td><u>    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>    </u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>    </u> (A)	<u>    </u> (B)	Prevalence Index = B/A = <u>    </u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u>    </u>	x1 = <u>    </u>																			
FACW species <u>    </u>	x2 = <u>    </u>																			
FAC species <u>    </u>	x3 = <u>    </u>																			
FACU species <u>    </u>	x4 = <u>    </u>																			
UPL species <u>    </u>	x5 = <u>    </u>																			
Column Totals: <u>    </u> (A)	<u>    </u> (B)																			
Prevalence Index = B/A = <u>    </u>																				
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Poa pratensis</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Lupinus polyphyllus</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Cirsium arvense</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
4. <u>Equisetum arvense</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
% Bare Ground in Herb Stratum <u>    </u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 10%;">No</td> <td style="width: 10%;"><input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>												
<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>																

Remarks: \*

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-11	10YR 2/1	100						
11-24	2.5Y 3/1	70	10YR 4/4	30				
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: Assumed hydric due to >14 days saturation

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 9  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 7

**Wetland Hydrology Present?** Yes  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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.30  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 10: W to E  
4: N to S  
 Subregion (LRR): A Lat: 47.600504° Long: -120.677236° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Brief gravelly sandy loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: <b>Mowed field</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum (Plot size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum (Plot size: _____)</u>																				
1. <u>Elymus repens</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Unid grass*</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum (Plot size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 35%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes <input checked="" type="checkbox"/></td> <td style="width: 10%;">No <input type="checkbox"/></td> <td style="width: 45%;"></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
Remarks: <u>*Assumed FAC</u>																				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-22</u>	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	_____	
<u>22-28</u>	<u>2.5Y 3/1</u>	<u>100</u>	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>								
Type: _____								
Depth (inches): _____					<b>Hydric Soils Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Remarks:								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input checked="" type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>17</u>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>15</u>	<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.31  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 1  
 Subregion (LRR): A Lat: 47.600555° Long: -120.677106° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Brief gravelly sandy loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Elymus repens</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Unid grass*</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;">No</td> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 10%;"><input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	No	<input checked="" type="checkbox"/>	<input type="checkbox"/>												
<b>Hydrophytic Vegetation Present?</b>	Yes	No	<input checked="" type="checkbox"/>	<input type="checkbox"/>																
Remarks: <u>*Assumed FAC</u>																				



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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.32  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 4  
 Subregion (LRR): A Lat: 47.599542° Long: -120.676567° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Brief gravelly sandy loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Mowed former orchard</b>					

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species <u>60</u></td> <td>x3 = <u>180</u></td> </tr> <tr> <td>FACU species <u>20</u></td> <td>x4 = <u>80</u></td> </tr> <tr> <td>UPL species <u>20</u></td> <td>x5 = <u>100</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>360</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.6</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species <u>60</u>	x3 = <u>180</u>	FACU species <u>20</u>	x4 = <u>80</u>	UPL species <u>20</u>	x5 = <u>100</u>	Column Totals: <u>100</u> (A)	<u>360</u> (B)	Prevalence Index = B/A = <u>3.6</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species <u>60</u>	x3 = <u>180</u>																			
FACU species <u>20</u>	x4 = <u>80</u>																			
UPL species <u>20</u>	x5 = <u>100</u>																			
Column Totals: <u>100</u> (A)	<u>360</u> (B)																			
Prevalence Index = B/A = <u>3.6</u>																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. <u>Orchard Saplings</u>	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Unid grass*</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Taraxacum officinale</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>																	
3. <u>Potentilla recta</u>	<u>20</u>	<u>yes</u>	<u>NL (UPL)</u>																	
4. <u>Poa pratensis</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
5. <u>Equisetum arvense</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 35%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes <input type="checkbox"/></td> <td style="width: 10%;">No <input checked="" type="checkbox"/></td> <td style="width: 45%;"></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>																		
Remarks: <u>*Assumed FAC</u>																				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-15	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	_____	_____
15-24	<u>2.5Y 3/1</u>	<u>100</u>	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>								
Type: _____						Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Depth (inches): _____								
Remarks:								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>14</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>12.5</u>
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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.33  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 4  
 Subregion (LRR): A Lat: 47.599598° Long: -120.676438° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Brief gravelly sandy loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>67</u> (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____	
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
Herb Stratum (Plot size: _____)				Column Totals: _____ (A)	_____ (B)
1. <u>Phleum pratense</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>	Prevalence Index = B/A = _____	
2. <u>Equisetum arvense</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>		
3. <u>Taraxacum officinale</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	<u>100</u>	= Total Cover			
Woody Vine Stratum (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
% Bare Ground in Herb Stratum _____					
Remarks: *					

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 2/1	100	_____	_____	_____	_____	silt	_____
12-24	10YR 2/1	100	_____	_____	_____	_____	sand	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: 0-12" BGS darker than chroma 1; Assumed problematic; saturation assumed >14 days.  
 No alpha-alpha dip. reaction

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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): adjacent  
 Water Table Present? Yes  No  Depth (inches): 8  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 1

**Wetland Hydrology Present?** Yes  No

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

Remarks: No alpha-alpha dip. reaction

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.34  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S11  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 5  
 Subregion (LRR): A Lat: 47.597642° Long: -120.675590° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peshastin loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>French drain to here from adjacent residence; BPJ that reduced iron is anthropogenically induced, and groundwater is 24" BGS.</b>					

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Column Totals: _____ (A)	_____ (B)
1. <u>Phleum pratense</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>	Prevalence Index = B/A = _____	
2. <u>Camassia quamash</u>	<u>40</u>	<u>yes</u>	<u>FACW</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	<u>100</u>	= Total Cover			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____					
Remarks: *				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 2/1	100	_____	_____	_____	_____	loam	_____
4-12	2.5Y 2.5/1	100	_____	_____	_____	_____	silt loam	_____
12-24	2.5Y 4/1	70	2.5Y 5/4	30	C	M	coarse sand	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 24

**Wetland Hydrology Present?** Yes  No

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

Remarks: Positive alpha-alpha dip. reaction 1-10" BGS  
 Landowner informed that french drain empties to this point; slight swale on hillside perpendicular to slope

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241711582010 State: WA Sampling Point: SP 1.35  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S11  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 4  
 Subregion (LRR): A Lat: 47.597130° Long: -120.675622° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>50</u> (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species <u>50</u>	x3 = <u>150</u>
5. _____	_____	_____	_____	FACU species <u>50</u>	x4 = <u>200</u>
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
Herb Stratum (Plot size: _____)				Column Totals:	<u>100</u> (A) <u>350</u> (B)
1. <i>Phleum pratense</i>	<u>30</u>	<u>yes</u>	<u>FAC</u>	Prevalence Index = B/A = <u>3.5</u>	
2. <i>Taraxacum officinale</i>	<u>20</u>	<u>yes</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
3. <i>Hypericum perforatum</i>	<u>20</u>	<u>yes</u>	<u>FACU</u>		
4. <i>Poa pratensis</i>	<u>20</u>	<u>yes</u>	<u>FAC</u>		
5. <i>Claytonia lanceolata</i>	<u>&lt;5</u>	<u>no</u>	<u>FAC</u>		
6. <i>Plantago lanceolata</i>	<u>5</u>	<u>no</u>	<u>FACU</u>		
7. <i>Potentilla recta</i>	<u>&lt;5</u>	<u>no</u>	<u>FACU</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
8. <i>Elymus repens</i>	<u>5</u>	<u>no</u>	<u>FAC</u>		
9. <i>Wyethia amplexicaulis</i>	<u>5</u>	<u>no</u>	<u>FACU</u>		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	<u>100</u>	= Total Cover			
Woody Vine Stratum (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____					
Remarks: *					

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	2.5Y 3/1	100	—	—	—	—	—	—
12-24	2.5Y 3/2	100	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>								
Type: _____								
Depth (inches): _____					<b>Hydric Soils Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Remarks:								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241711582010 State: WA Sampling Point: SP 1.36  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S11  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 4  
 Subregion (LRR): A Lat: 47.596701° Long: -120.675609° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">1 (A)</span>  Total Number of Dominant Species Across All Strata: <span style="float: right;">1 (B)</span>  Percent of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">100 (A/B)</span>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phleum pratense</u>	<u>90</u>	<u>yes</u>	<u>FAC</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>90</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
<b>Hydrophytic Vegetation Present?</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"></td> <td style="width: 10%;">Yes</td> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 10%;">No</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> </tr> </table>					Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>												
	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>																

Remarks: \_\_\_\_\_



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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241711582010 State: WA Sampling Point: SP 1.37  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S11  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 4  
 Subregion (LRR): A Lat: 47.596775° Long: -120.675874° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">1 (A)</span>  Total Number of Dominant Species Across All Strata: <span style="float: right;">1 (B)</span>  Percent of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">100 (A/B)</span>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Elymus repens</u>	<u>95</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Claytonia lanceolata</u>	<u>5</u>	<u>no</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%; text-align: center;">Yes</td> <td style="width: 15%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 15%; text-align: center;">No</td> <td style="width: 25%; text-align: center;"><input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>												
<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>																

Remarks: \*

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	2.5Y 3/1	100	_____	_____	_____	_____	Silt loam	_____
8-22	2.5Y 4/2	100	_____	_____	_____	_____	Stony loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?**      Yes      No  

Remarks:      rocks in 8-22 layer

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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      No       Depth (inches): \_\_\_\_\_  
 Saturation Present?  
 (includes capillary fringe)    Yes      No       Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?**      Yes      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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241711582010 State: WA Sampling Point: SP 1.38  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S11  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 2  
 Subregion (LRR): A Lat: 47.596353° Long: -120.675636° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum (Plot size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum (Plot size: _____)</u>																				
1. <u>Phleum pratense</u>	<u>80</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Poa pratensis</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum (Plot size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks: *																				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 3/1	100	_____	_____	_____	_____	_____	_____
12-20+	2.5Y 3/1	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.			<sup>2</sup> Location: PL=Pore Lining, M=Matrix					
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>								
Type: _____						Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Depth (inches): _____								
Remarks:								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Positive alpha-alpha dip reaction (VERY FAINT) in upper 9". Reaction occurred after about 5 minutes, thus does not count. Soil was not saturated.			

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241711582010 State: WA Sampling Point: SP 1.39  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S11  
 Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none):      Slope (%):       
 Subregion (LRR): A Lat: 47.596710° Long: -120.674514° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Unidentified</u>	<u>50</u>	<u>yes</u>	_____																	
2. <u>Phleum pratense</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 2/1	100						
12-24	2.5Y 2.5/1	80	10YR 5/6	20				
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 18  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 16

**Wetland Hydrology Present?** Yes  No

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

Remarks: no alpha-alpha dip. reaction

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241711582010 State: WA Sampling Point: SP 1.40  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S11  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none):      Slope (%):       
 Subregion (LRR): A Lat: 47.596745° Long: -120.674142° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">1 (A)</span> Total Number of Dominant Species Across All Strata: <span style="float: right;">1 (B)</span> Percent of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">100 (A/B)</span>																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phleum pratense</u>	80	yes	FAC																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	80	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum <u>20</u>																				
Remarks: *																				

Hydrophytic Vegetation Present? Yes  No

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-17	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	<u>loam</u>	
17-24	<u>2.5Y 2.5/1</u>	<u>95</u>	<u>2.5Y 5/3</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>silt loam</u>	
_____								
_____								
_____								
_____								
_____								
_____								
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.			<sup>2</sup> Location: PL=Pore Lining, M=Matrix					
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>								
Type: _____						Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Depth (inches): _____								
Remarks: at 9" BGS a layer of 0" thickness where the profile broke freely and clearly; glittery mineral ("Fool's Gold") and faint redox								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>20</u>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>17</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: no alpha-alpha dip. reaction			

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.41  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S11  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none):      Slope (%):       
 Subregion (LRR): A Lat: 47.597214° Long: -120.674223° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">1 (A)</span>  Total Number of Dominant Species Across All Strata: <span style="float: right;">1 (B)</span>  Percent of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">100 (A/B)</span>																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phleum pratense</u>	90	yes	FAC																	
2. <u>Moss</u>	10	no	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	100	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
Remarks: *																				



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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.42  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S11  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 2  
 Subregion (LRR): A Lat: 47.597792° Long: -120.674722° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

## VEGETATION – Use scientific names of plants

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phleum pratense</u>	<u>80</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Elymus repens</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes</td> <td style="width: 15%;">No</td> <td style="width: 15%;"></td> <td style="width: 25%;"></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	No				<input checked="" type="checkbox"/>	<input type="checkbox"/>									
<b>Hydrophytic Vegetation Present?</b>	Yes	No																		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>																		
Remarks: *																				

Project Site: \_\_\_\_\_

Sampling Point: SP 1.42

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-11	10YR 2/1	100	_____	_____	_____	_____	silty clay	_____
11-24	10YR 2/1	100	_____	_____	_____	_____	sandy loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: Assumed saturated for >14 days

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 6  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 2

**Wetland Hydrology Present?** Yes  No

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

Remarks: No alpha-alpha dip. reaction

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.43  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S11  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 2  
 Subregion (LRR): A Lat: 47.597812° Long: -120.674927° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum (Plot size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum (Plot size: _____)</u>																				
1. <u>Phleum pratense</u>	<u>80</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Elymus repens</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum (Plot size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes <input checked="" type="checkbox"/></td> <td style="width: 15%;">No <input type="checkbox"/></td> <td style="width: 40%;"></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		

Remarks: \_\_\_\_\_

**SOIL**

Sampling Point: SP 1.43

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-13</u>	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	<u>silty clay loam</u>	_____
<u>13-24</u>	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	<u>coarse sandy loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                            |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b> |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                        |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                            |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                         |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                      |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                          |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- |   |
|---|
| <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

- |  |
|--|
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |
| <b>(MLRA 1, 2, 4A, and 4B)</b>                                     |
| <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Geomorphic Position (D2)                  |
| <input type="checkbox"/> Shallow Aquitard (D3)                     |
| <input type="checkbox"/> FAC-Neutral Test (D5)                     |
| <input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>     |
| <input type="checkbox"/> Frost-Heave Hummocks (D7)                 |

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 15  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 13

**Wetland Hydrology Present?** Yes  No

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

Remarks: No alpha-alpha dip. reaction

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/16/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.44  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S11  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none):      Slope (%):       
 Subregion (LRR): A Lat: 47.597858° Long: -120.673475° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>    </u></td> <td>x3 = <u>    </u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>    </u> (A)</td> <td><u>    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>    </u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>    </u> (A)	<u>    </u> (B)	Prevalence Index = B/A = <u>    </u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u>    </u>	x1 = <u>    </u>																			
FACW species <u>    </u>	x2 = <u>    </u>																			
FAC species <u>    </u>	x3 = <u>    </u>																			
FACU species <u>    </u>	x4 = <u>    </u>																			
UPL species <u>    </u>	x5 = <u>    </u>																			
Column Totals: <u>    </u> (A)	<u>    </u> (B)																			
Prevalence Index = B/A = <u>    </u>																				
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Dactylis glomerata</u>	<u>40</u>	<u>yes</u>	<u>FACU</u>																	
2. <u>Elymus repens</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Poa pratensis</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
4. <u>Cirsium arvense</u>	<u>5</u>	<u>no</u>	<u>FAC</u>																	
5. <u>Taraxacum officinale</u>	<u>5</u>	<u>no</u>	<u>FACU</u>																	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
% Bare Ground in Herb Stratum <u>    </u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;">No</td> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 10%;"><input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	No	<input checked="" type="checkbox"/>	<input type="checkbox"/>												
<b>Hydrophytic Vegetation Present?</b>	Yes	No	<input checked="" type="checkbox"/>	<input type="checkbox"/>																
Remarks: *																				





**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-24	10YR 2/1	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: no alpha-alpha dip. reaction

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 13  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 13

**Wetland Hydrology Present?** Yes  No

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

Remarks: no alpha-alpha dip. reaction

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/17/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.46  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S11  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none):      Slope (%):       
 Subregion (LRR): A Lat: 47.597492° Long: -120.673056° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<b>Dominance Test Worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>    </u></td> <td>x3 = <u>    </u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>    </u> (A)</td> <td><u>    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>    </u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>    </u> (A)	<u>    </u> (B)	Prevalence Index = B/A = <u>    </u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u>    </u>	x1 = <u>    </u>																			
FACW species <u>    </u>	x2 = <u>    </u>																			
FAC species <u>    </u>	x3 = <u>    </u>																			
FACU species <u>    </u>	x4 = <u>    </u>																			
UPL species <u>    </u>	x5 = <u>    </u>																			
Column Totals: <u>    </u> (A)	<u>    </u> (B)																			
Prevalence Index = B/A = <u>    </u>																				
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Elymus repens</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Claytonia lanceolata</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Dactylis glomerata</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
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	<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>															
Remarks: *																				

Project Site: \_\_\_\_\_

Sampling Point: SP 1.46

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-22	10YR 2/1	100	_____	_____	_____	_____	silt loam	_____
22-24	2.5Y 3/2	80	10YR 4/6	20	C	M	silt loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soils Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/15/15  
 Applicant/Owner: Motteler 241702650015 State: WA Sampling Point: SP 1.47  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S11  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none):      Slope (%):       
 Subregion (LRR): A Lat: 47.597156° Long: -120.673825° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>    </u></td> <td>x3 = <u>    </u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>    </u> (A)</td> <td><u>    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>    </u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>    </u> (A)	<u>    </u> (B)	Prevalence Index = B/A = <u>    </u>	
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Prevalence Index = B/A = <u>    </u>																				
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
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50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Elymus repens</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Poa pratensis</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Lactuca serriola</u>	<u>10</u>	<u>no</u>	<u>FACU</u>																	
4. <u>Taraxaculum officinale</u>	<u>10</u>	<u>no</u>	<u>FACU</u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
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<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
Remarks: *																				



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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/17/15  
 Applicant/Owner: Duke 241702670201 State: WA Sampling Point: SP 1.48  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S11  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none):      Slope (%):       
 Subregion (LRR): A Lat: 47.597068° Long: -120.672718° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
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2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
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<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Poa pratensis</u>	<u>90</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
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<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
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<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
Remarks: *																				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	2.5Y 4/4	100	_____	_____	_____	_____	sandy loam	_____
9-11	2.5Y 5/4	100	_____	_____	_____	_____	sandy loam	_____
11+	2.5Y 4/2	100	_____	_____	_____	_____	sandy loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.			<sup>2</sup> Location: PL=Pore Lining, M=Matrix					
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<input type="checkbox"/> Restrictive Layer (if present):								
Type: _____								
Depth (inches): _____						<b>Hydric Soils Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:    very dry			

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/17/15  
 Applicant/Owner: Marson 241702670145 State: WA Sampling Point: SP 1.49  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.602351° Long: -120.671165° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% = _____, 20% = _____	_____	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Phalaris arundinacea</u>	<u>50</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Lupinus polyphyllus</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>	
3. <u>Carex aquatilis</u>	<u>20</u>	<u>no</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = _____, 20% = _____	<u>100</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
% Bare Ground in Herb Stratum _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: *				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR 2/1	100					silt loam	
5-8	N 2.5/	95	10YR 4/6	5	C	M, PL	coarse sand/loam	
8-24	N 2.5Y	90	10YR 4/6	10	C	M, PL	silt loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)				Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/>	Histosol (A1)	<input type="checkbox"/>	Sandy Redox (S5)	<input type="checkbox"/>	2 cm Muck (A10)
<input type="checkbox"/>	Histic Epipedon (A2)	<input type="checkbox"/>	Stripped Matrix (S6)	<input type="checkbox"/>	Red Parent Material (TF2)
<input type="checkbox"/>	Black Histic (A3)	<input type="checkbox"/>	Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/>	Very Shallow Dark Surface (TF12)
<input type="checkbox"/>	Hydrogen Sulfide (A4)	<input type="checkbox"/>	Loamy Gleyed Matrix (F2)	<input type="checkbox"/>	Other (Explain in Remarks)
<input type="checkbox"/>	Depleted Below Dark Surface (A11)	<input type="checkbox"/>	Depleted Matrix (F3)		
<input type="checkbox"/>	Thick Dark Surface (A12)	<input checked="" type="checkbox"/>	Redox Dark Surface (F6)		
<input type="checkbox"/>	Sandy Mucky Mineral (S1)	<input type="checkbox"/>	Depleted Dark Surface (F7)		
<input type="checkbox"/>	Sandy Gleyed Matrix (S4)	<input type="checkbox"/>	Redox Depressions (F8)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soils Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water-Stained Leaves (B9)
<input checked="" type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Salt Crust (B11)
<input type="checkbox"/>	Water Marks (B1)	<input type="checkbox"/>	Aquatic Invertebrates (B13)
<input type="checkbox"/>	Sediment Deposits (B2)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)
<input type="checkbox"/>	Drift Deposits (B3)	<input type="checkbox"/>	Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input checked="" type="checkbox"/>	Presence of Reduced Iron (C4)
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/>	Surface Soil Cracks (B6)	<input type="checkbox"/>	Stunted or Stresses Plants (D1) (LRR A)
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/>	Other (Explain in Remarks)
<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>10</u> Saturation Present? (includes capillary fringe)    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2</u>	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Assumed pit will fill to saturation level as with SP-1.1 to the east, which took hours to fill to sat. line. Initially, sat. occurred in upper 2" but water table was lower.  
Positive alpha-alpha dip reaction from 2" BGS down.

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/17/15  
 Applicant/Owner: Marson 241702670150 State: WA Sampling Point: SP 1.50  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.602059° Long: -120.672524° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phalaris arundinacea</u>	<u>50</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>Lupinus polyphyllus</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Phleum pratense</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
4. <u>Cirsium arvense</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 35%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes <input checked="" type="checkbox"/></td> <td style="width: 10%;">No <input type="checkbox"/></td> <td style="width: 40%;"></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR 2/1	100	_____	_____	_____	_____	loam	_____
5-9	2.5Y 2.5/1	100	_____	_____	_____	_____	sandy loam	_____
9-24	2.5Y 2.5/1	95	10YR 4/6	5	C	M, PL	sandy loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 14  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 12.5

**Wetland Hydrology Present?** Yes  No

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

Remarks: no surface saturation  
 no alpha-alpha dip reaction

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/17/15  
 Applicant/Owner: Marson 241702670150 State: WA Sampling Point: SP 1.51  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.601882° Long: -120.672553° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phalaris arundinacea</u>	<u>50</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>Lupinus polyphyllus</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Phleum pratense</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 2/1	100	_____	_____	_____	_____	silt loam	_____
3-14	N 2.5/	100	_____	_____	_____	_____	coarse sandy loam	_____
14-24	N 2.5/	90	10YR 4/6	10	_____	_____	sandy silt loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: positive alpha-alpha dip reaction; assumed saturated >14 days

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 6  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 3

**Wetland Hydrology Present?** Yes  No

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

Remarks: positive alpha-alpha dip reaction from 0-8" BGS, not below

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/17/15  
 Applicant/Owner: Marson 241702670150 State: WA Sampling Point: SP 1.52  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.602368° Long: -120.671992° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phalaris arundinacea</u>	<u>50</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>Vicia americana</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Phleum pratense</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
4. <u>Cirsium arvense</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 35%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes <input checked="" type="checkbox"/></td> <td style="width: 30%;">No <input type="checkbox"/></td> <td style="width: 20%;"></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 2/1	100					loam	
12-14	10YR 2/1	95	10YR 4/6	5	c	m	silt loam	
14-24	2.5Y 2.5/1	100					silty sandy loam	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: no alpha-alpha dip reaction

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 25  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 21

**Wetland Hydrology Present?** Yes  No

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

Remarks: no alpha-alpha dip reaction

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/22/15  
 Applicant/Owner: Yancy 241702650075 State: WA Sampling Point: SP 1.53  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none):      Slope (%):       
 Subregion (LRR): A Lat: 47.599703° Long: -120.671272° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Pit dug in NW portion of Yancy parcel</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>60</u></td> <td>x3 = <u>180</u></td> </tr> <tr> <td>FACU species <u>40</u></td> <td>x4 = <u>160</u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>340</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.4</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>60</u>	x3 = <u>180</u>	FACU species <u>40</u>	x4 = <u>160</u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>100</u> (A)	<u>340</u> (B)	Prevalence Index = B/A = <u>3.4</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u>    </u>	x1 = <u>    </u>																			
FACW species <u>    </u>	x2 = <u>    </u>																			
FAC species <u>60</u>	x3 = <u>180</u>																			
FACU species <u>40</u>	x4 = <u>160</u>																			
UPL species <u>    </u>	x5 = <u>    </u>																			
Column Totals: <u>100</u> (A)	<u>340</u> (B)																			
Prevalence Index = B/A = <u>3.4</u>																				
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Phleum pratense</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Equisetum arvense</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Trifolium pratense</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>																	
4. <u>Taraxacum officinale</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>																	
5. <u>Cirsium arvense</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
% Bare Ground in Herb Stratum <u>    </u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes <input type="checkbox"/></td> <td style="width: 10%;">No <input checked="" type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>																		
Remarks: *																				



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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/17/15  
 Applicant/Owner: Yancy 241702650075 State: WA Sampling Point: SP 1.54  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave Slope (%): 2  
 Subregion (LRR): A Lat: 47.599035° Long: -120.671315° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Pit dug in lowest point of SW portion of Yancy parcel, just east of fence</b> Pit located in a small, slight depression in the lawn (lowest point), in a possible drainfield. BPJ marginal non-wetland.					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	1 (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	2 (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	50 (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Column Totals: _____ (A)	_____ (B)
1. <u>Taraxacum officinale</u>	40	yes	FACU	Prevalence Index = B/A = _____	
2. <u>mowed grasses</u>	60	yes	FAC		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	100	= Total Cover			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____					
Remarks: *mowed lawn				<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	



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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/22/15  
 Applicant/Owner: Yancy 241702650075 State: WA Sampling Point: SP 1.55  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.):      Local relief (concave, convex, none):      Slope (%): 2: N-S  
1.5: W-E  
 Subregion (LRR): A Lat: 47.598914° Long: -120.670383° Datum:       
 Soil Map Unit Name:      NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: <b>Pit dug in southeast corner of Yancy parcel, lowest portion of East side of parcel</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:			
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>3</u> (A)		
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Total Number of Dominant Species Across All Strata:	<u>4</u> (B)		
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>75</u> (A/B)		
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>				
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover					
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>				<b>Prevalence Index worksheet:</b>			
1. <u>Betula papyrifera</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>	Total % Cover of:	Multiply by:		
2. <u>Cornus sericea</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>	OBL species <u>    </u>	x1 = <u>    </u>		
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>		
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>		
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>		
50% = <u>    </u> , 20% = <u>    </u>	<u>40</u>	= Total Cover		UPL species <u>    </u>	x5 = <u>    </u>		
<b>Herb Stratum (Plot size: <u>    </u>)</b>				Column Totals: <u>    </u> (A)	<u>    </u> (B)		
1. <u>Taraxacum officinale</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	Prevalence Index = B/A = <u>    </u>			
2. <u>Phleum pratense</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>				
3. <u>Plantago major</u>	<u>15</u>	<u>no</u>	<u>FAC</u>				
4. <u>Achillea millefolium</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>				
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>				
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>				
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>				
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>				
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>				
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>				
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>				
50% = <u>    </u> , 20% = <u>    </u>	<u>100</u>	= Total Cover					
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>				<b>Hydrophytic Vegetation Indicators:</b>			
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)			
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>				
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover					
% Bare Ground in Herb Stratum <u>    </u>				<b>Hydrophytic Vegetation Present?</b>			
				Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>

Remarks: \*Mowed lawn

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-24	10YR 2/1	100	_____	_____	_____	_____	_____	darker than typical 10YR 2/1
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: no alpha-alpha dip reaction in upper 12" BGS

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 20  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 16

**Wetland Hydrology Present?** Yes  No

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

Remarks: Small depression on adjacent parcel ~8-10" lower with water-stained leaves, evidence of ponding. About 30 sq-ft. Surrounding area higher.

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/23/15  
 Applicant/Owner: Guthrie 241702670165 State: WA Sampling Point: SP 1.56  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave Slope (%):      
 Subregion (LRR): A Lat: 47.602294° Long: -120.676238° Datum:      
 Soil Map Unit Name: Burch fine sandy loam NWI classification:      
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <b>Drier than normal</b>			

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u><i>Pinus ponderosa</i></u>	<u>40</u>	<u>yes</u>	<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)																
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)																
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)																
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>40</u>	= Total Cover																		
<u>Sapling/Shrub Stratum (Plot size: _____)</u>																				
1. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; border-bottom: 1px solid black;">Total % Cover of:</td> <td style="text-align: center; border-bottom: 1px solid black;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum (Plot size: _____)</u>																				
1. <u><i>Phalaris arundinacea</i></u>	<u>50</u>	<u>yes</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u><i>Phleum pratense</i></u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u><i>Equisetum arvense</i></u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
4. <u><i>Galium aparine</i></u>	<u>5</u>	<u>no</u>	<u>FACU</u>																	
5. <u><i>Rumex crispus</i></u>	<u>5</u>	<u>no</u>	<u>FAC</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum (Plot size: _____)</u>																				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"></td> <td style="width: 10%;">Yes</td> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 10%;">No</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> </tr> </table>		Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>											
	Yes	<input checked="" type="checkbox"/>	No		<input type="checkbox"/>															
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 2/1	100	_____	_____	_____	_____	loam	_____
12-24	10YR 2/1	100	_____	_____	_____	_____	cobbly silt loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 19

**Wetland Hydrology Present?** Yes  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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/23/15  
 Applicant/Owner: Guthrie 241702670165 State: WA Sampling Point: SP 1.57  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): convex Slope (%):      
 Subregion (LRR): A Lat: 47.602441° Long: -120.676251° Datum:      
 Soil Map Unit Name: Burch fine sandy loam NWI classification:      
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <b>Drier than normal</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phleum pratense</u>	<u>70</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Cirsium arvense</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes <input checked="" type="checkbox"/></td> <td style="width: 15%;">No <input type="checkbox"/></td> <td style="width: 40%;"></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
Remarks: *																				



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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/23/15  
 Applicant/Owner: Guthrie 241702670165 State: WA Sampling Point: SP 1.58  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 2  
 Subregion (LRR): A Lat: 47.602003° Long: -120.676188° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Burch fine sandy loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Drier than normal; pit dug in a small depression (~2 ft lower) on western property boundary adjacent to formerly delineated wetland on the Lellelid parcel</b>					

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species <u>80</u></td> <td>x2 = <u>160</u></td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species <u>30</u></td> <td>x4 = <u>120</u></td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: <u>110</u> (A)</td> <td><u>280</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.54</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species <u>80</u>	x2 = <u>160</u>	FAC species _____	x3 = _____	FACU species <u>30</u>	x4 = <u>120</u>	UPL species _____	x5 = _____	Column Totals: <u>110</u> (A)	<u>280</u> (B)	Prevalence Index = B/A = <u>2.54</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species <u>80</u>	x2 = <u>160</u>																			
FAC species _____	x3 = _____																			
FACU species <u>30</u>	x4 = <u>120</u>																			
UPL species _____	x5 = _____																			
Column Totals: <u>110</u> (A)	<u>280</u> (B)																			
Prevalence Index = B/A = <u>2.54</u>																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. <u>Populus tremuloides</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>30</u>	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Phalaris arundinacea</u>	<u>80</u>	<u>yes</u>	<u>FACW</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>80</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks: <u>*Grand fir, ornamental pacific willows nearby rooted above</u>																				



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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/23/15  
 Applicant/Owner: Guthrie 241702670165 State: WA Sampling Point: SP 1.59  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): \_\_  
 Subregion (LRR): A Lat: 47.601629° Long: -120.676176° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: <b>Drier than normal</b>					

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. <u>Salix lucida var. lasiandra</u>	<u>50</u>	<u>yes</u>	<u>FACW</u>	<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species <u>140</u></td> <td>x2 = <u>280</u></td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species <u>30</u></td> <td>x4 = <u>120</u></td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: <u>170</u> (A)</td> <td><u>400</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.35</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species _____	x1 = _____	FACW species <u>140</u>	x2 = <u>280</u>	FAC species _____	x3 = _____	FACU species <u>30</u>	x4 = <u>120</u>	UPL species _____	x5 = _____	Column Totals: <u>170</u> (A)	<u>400</u> (B)	Prevalence Index = B/A = <u>2.35</u>	
Total % Cover of:	Multiply by:																			
OBL species _____	x1 = _____																			
FACW species <u>140</u>	x2 = <u>280</u>																			
FAC species _____	x3 = _____																			
FACU species <u>30</u>	x4 = <u>120</u>																			
UPL species _____	x5 = _____																			
Column Totals: <u>170</u> (A)	<u>400</u> (B)																			
Prevalence Index = B/A = <u>2.35</u>																				
2. <u>Populus tremuloides</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>80</u>	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Phalaris arundinacea</u>	<u>90</u>	<u>yes</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>90</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
Remarks: *																				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 2/1	100	_____	_____	_____	_____	sandy loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input checked="" type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>					<b>Hydric Soils Present?</b>			
Type: _____					Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Depth (inches): _____								
Remarks:    Problematic soil: no alpha-alpha dip. reaction; assumed saturated more than 14 days.								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>12</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>11</u>
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: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/23/15  
 Applicant/Owner: Guthrie 241702670165 State: WA Sampling Point: SP 1.60  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 5  
 Subregion (LRR): A Lat: 47.601669° Long: -120.676195° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:		
1. <u>Populus tremuloides</u>	<u>40</u>	<u>yes</u>	<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u>	(A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>3</u>	(B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>67</u>	(A/B)
4. _____	_____	_____	_____			
50% = _____, 20% = _____	<u>40</u>	= Total Cover				
<u>Sapling/Shrub Stratum (Plot size: _____)</u>				<b>Prevalence Index worksheet:</b>		
1. _____	_____	_____	_____	<u>Total % Cover of:</u>		<u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species _____	x1 = _____	
3. _____	_____	_____	_____	FACW species _____	x2 = _____	
4. _____	_____	_____	_____	FAC species _____	x3 = _____	
5. _____	_____	_____	_____	FACU species _____	x4 = _____	
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____	
<u>Herb Stratum (Plot size: _____)</u>				Column Totals: _____ (A)	_____ (B)	
1. <u>Phleum pratense</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>	Prevalence Index = B/A = _____		
2. <u>Equisetum arvense</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>			
3. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b>		
4. _____	_____	_____	_____	<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation		
5. _____	_____	_____	_____	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%		
6. _____	_____	_____	_____	<input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>		
7. _____	_____	_____	_____	<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)		
8. _____	_____	_____	_____	<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>		
9. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
10. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
11. _____	_____	_____	_____			
50% = _____, 20% = _____	<u>90</u>	= Total Cover				
<u>Woody Vine Stratum (Plot size: _____)</u>				<b>Hydrophytic Vegetation Present?</b>		
1. _____	_____	_____	_____	Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
2. _____	_____	_____	_____			
50% = _____, 20% = _____	_____	= Total Cover				
% Bare Ground in Herb Stratum _____						
Remarks: *						

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 2/1	100	_____	_____	_____	_____	sandy loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: Problematic soils: assumed saturated for >14 consecutive days

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 13  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 12

**Wetland Hydrology Present?** Yes  No

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

Remarks: no alpha-alpha dip. reaction

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/23/15  
 Applicant/Owner: Guthrie 241702670165 State: WA Sampling Point: SP 1.61  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): \_\_  
 Subregion (LRR): A Lat: 47.601669° Long: -120.675999° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks: <b>Dry season</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Phleum pratense</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Equisetum arvense</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes</td> <td style="width: 15%;">No</td> <td style="width: 30%;"></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	No			<input checked="" type="checkbox"/>	<input type="checkbox"/>										
<b>Hydrophytic Vegetation Present?</b>	Yes	No																		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>																		

Remarks: \*

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	2.5Y 2.5/1	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: positive alpha-alpha dip reaction 0-12" BGS; presumed saturated more than 14 days

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 13  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 12

**Wetland Hydrology Present?** Yes  No

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

Remarks: positive alpha-alpha dip reaction 0-12" BGS; presumed saturated more than 14 days

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/23/15  
 Applicant/Owner: Guthrie 241702670165 State: WA Sampling Point: SP 1.62  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 5  
 Subregion (LRR): A Lat: 47.601685° Long: -120.675642° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: <b>Dry season</b>					

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b> Total % Cover of: <u>        </u> Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Phleum pratense</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Lupinus polyphyllus</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>	
3. <u>Taraxacum officinale</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
4. <u>Scirpus microcarpus</u>	<u>10</u>	<u>no</u>	<u>OBL</u>	
5. <u>Rumex crispus</u>	<u>10</u>	<u>no</u>	<u>FAC</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = _____, 20% = _____	<u>100</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
% Bare Ground in Herb Stratum _____				
Remarks: _____				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	<u>silt loam</u>	_____
16-24	<u>2.5Y 3/1</u>	<u>85</u>	<u>10YR 4/6</u>	<u>15</u>	<u>C</u>	<u>M</u>	<u>silt loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input checked="" type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>					<b>Hydric Soils Present?</b>			
Type: _____					Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Depth (inches): _____								
Remarks: Problematic soils: positive alpha-alpha dip reaction 3-12" BGS; assumed hydric >14 days								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>13</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>12</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: positive alpha-alpha dip reaction 3-12" BGS			

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/23/15  
 Applicant/Owner: Guthrie 241702670165 State: WA Sampling Point: SP 1.63  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 5  
 Subregion (LRR): A Lat: 47.601510° Long: -120.675436° Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: <b>Dry season</b>					

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. <u>Crataegus douglasii</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>20</u>	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Phleum pratense</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Lupinus polyphyllus</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks: _____																				

Project Site: \_\_\_\_\_

Sampling Point: SP 1.63

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR 2/1	100	_____	_____	_____	_____	silt loam	_____
7-24	5Y 3/1	85	10YR 4/6	15	C	M	sandy silt loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: positive alpha-alpha dip reaction 5-12" BGS

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 13  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 12

**Wetland Hydrology Present?** Yes  No

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

Remarks: positive alpha-alpha dip reaction 5-12" BGS

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/23/15  
 Applicant/Owner: Guthrie 241702670165 State: WA Sampling Point: SP 1.64  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): \_\_  
 Subregion (LRR): A Lat: 47.601759° Long: -120.675789° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <b>Dry season</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table> <b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Phleum pratense</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Lupinus polyphyllus</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes <input checked="" type="checkbox"/></td> <td style="width: 30%;">No <input type="checkbox"/></td> <td style="width: 25%;"></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
Remarks: *																				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	_____	_____
9-16	<u>10YR 2/1</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	_____	_____	_____	<u>point of refusal = rocks @ 16"BGS</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>					<b>Hydric Soils Present?</b>			
Type: _____					Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Depth (inches): _____								
Remarks:								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<u>none to 16"BGS</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:    no alpha-alpha dip reaction			

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/28/15  
 Applicant/Owner: McCollum (w. parcel) State: WA Sampling Point: SP 1.65  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 2  
 Subregion (LRR): A Lat: 47.598407° Long: -120.671208° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Dry season</b>					

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	1 (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	3 (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	33 (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	<u>Total % Cover of:</u> <u>Multiply by:</u>	
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species <u>50</u>	x3 = <u>150</u>
5. _____	_____	_____	_____	FACU species <u>50</u>	x4 = <u>200</u>
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
Herb Stratum (Plot size: _____)				Column Totals:	<u>100</u> (A) <u>350</u> (B)
1. <u>Poa pratensis</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>	Prevalence Index = B/A = <u>3.5</u>	
2. <u>Taraxacum officinale</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
3. <u>Medicago sativa</u>	<u>20</u>	<u>no</u>	<u>FACU</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	<u>100</u>	= Total Cover			
Woody Vine Stratum (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b>	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____				Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: *					



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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/28/15  
 Applicant/Owner: McCollum (w. parcel) State: WA Sampling Point: SP 1.66  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 5  
 Subregion (LRR): A Lat: 47.598388° Long: -120.671381° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: <b>Dry season</b>					

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:			
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	1 (A)		
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	1 (B)		
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	100 (A/B)		
4. _____	_____	_____	_____				
50% = _____, 20% = _____	_____	= Total Cover					
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:			
1. _____	_____	_____	_____	<u>Total % Cover of:</u> <span style="float: right;"><u>Multiply by:</u></span>			
2. _____	_____	_____	_____	OBL species _____	x1 = _____		
3. _____	_____	_____	_____	FACW species _____	x2 = _____		
4. _____	_____	_____	_____	FAC species _____	x3 = _____		
5. _____	_____	_____	_____	FACU species _____	x4 = _____		
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____		
Herb Stratum (Plot size: _____)				Column Totals: _____ (A)	_____ (B)		
1. <u>Phleum pratense</u>	60	yes	FAC	Prevalence Index = B/A = _____			
2. <u>Lupinus polyphyllus</u>	10	no	FAC	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)			
3. <u>Phalaris arundinacea</u>	10	no	FACW				
4. <u>Taraxacum officinale</u>	10	no	FACU				
5. <u>Trifolium pratense</u>	10	no	FACU				
6. _____	_____	_____	_____				
7. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
8. _____	_____	_____	_____				
9. _____	_____	_____	_____				
10. _____	_____	_____	_____				
11. _____	_____	_____	_____				
50% = _____, 20% = _____	100	= Total Cover		<b>Hydrophytic Vegetation Present?</b>			
Woody Vine Stratum (Plot size: _____)						Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
1. _____	_____	_____	_____				
2. _____	_____	_____	_____				
50% = _____, 20% = _____	_____	= Total Cover					
% Bare Ground in Herb Stratum _____							
Remarks: *							

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-24	10YR 2/1	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: Problematic soils: presumed saturated >14 days

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 13  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 12

**Wetland Hydrology Present?** Yes  No

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

Remarks: no alpha-alpha dip reaction

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/28/15  
 Applicant/Owner: McCollum (w. parcel) State: WA Sampling Point: SP 1.67  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 4  
 Subregion (LRR): A Lat: 47.598592° Long: -120.670545° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <b>Dry season</b>			

### VEGETATION – Use scientific names of plants

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species <u>70</u></td> <td>x3 = <u>210</u></td> </tr> <tr> <td>FACU species <u>30</u></td> <td>x4 = <u>120</u></td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>330</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.3</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species <u>70</u>	x3 = <u>210</u>	FACU species <u>30</u>	x4 = <u>120</u>	UPL species _____	x5 = _____	Column Totals: <u>100</u> (A)	<u>330</u> (B)	Prevalence Index = B/A = <u>3.3</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species <u>70</u>	x3 = <u>210</u>																			
FACU species <u>30</u>	x4 = <u>120</u>																			
UPL species _____	x5 = _____																			
Column Totals: <u>100</u> (A)	<u>330</u> (B)																			
Prevalence Index = B/A = <u>3.3</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Poa pratensis</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Trifolium pratense</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Taraxacum officinale</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
Remarks: _____																				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	<u>10YR 4/2</u>	<u>70</u>	<u>10YR 4/4</u>	<u>30</u>	_____	_____	_____	_____
<u>10-24</u>	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix			
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input checked="" type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>					<b>Hydric Soils Present?</b>			
Type: _____					Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Depth (inches): _____								
Remarks:								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>24</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>21</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: No alpha-alpha dip reaction; BPJ, water level too low given survey date (4/28/15) to qualify as "Dry-Season Water Table" (C2)			



**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-28	10YR 2/1	100					clay/silt	
28-34	5Y 3/1	90	10YR 4/6	10	C	M	sandy clay loam	
34-48	5GY 4/1	90	10YR 4/6	10	C	M	silt/sandy	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

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  No  Depth (inches): 15  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 13

**Wetland Hydrology Present?** Yes  No

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

Remarks: BPJ: groundwater has dropped in past two weeks. Presumed to be higher than 12" BGS for long-enough period.  
no alpha-alpha dip reaction <12" BGS

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/28/15  
 Applicant/Owner: McCollum (e. parcel) State: WA Sampling Point: SP 1.69  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%):     
 Subregion (LRR): A Lat: 47.598439° Long: -120.669984° Datum:     
 Soil Map Unit Name: Peoh silt loam NWI classification:     
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Dry season</b>					

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% = _____, 20% = _____	_____	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Phleum pratense</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Poa pratensis</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>	
3. <u>Taraxacum officinale</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>	
4. <u>Medicago sativa</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = _____, 20% = _____	<u>100</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
% Bare Ground in Herb Stratum _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: *				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-26	10YR 2/1	100	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>								
Type: _____								
Depth (inches): _____					<b>Hydric Soils Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Remarks:								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:      Dry to 26" BGS			

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/28/15  
 Applicant/Owner: McCollum (e. parcel) State: WA Sampling Point: SP 1.70  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave Slope (%):      
 Subregion (LRR): A Lat: 47.598406° Long: -120.670271° Datum:      
 Soil Map Unit Name: Peoh silt loam NWI classification:      
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <b>Dry season</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>   </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
2. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
3. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
4. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
50% = <u>   </u> , 20% = <u>   </u>	<u>   </u>	= Total Cover		<b>Prevalence Index worksheet:</b> Total % Cover of: <u>   </u> Multiply by: OBL species <u>   </u> x1 = <u>   </u> FACW species <u>   </u> x2 = <u>   </u> FAC species <u>   </u> x3 = <u>   </u> FACU species <u>   </u> x4 = <u>   </u> UPL species <u>   </u> x5 = <u>   </u> Column Totals: <u>   </u> (A) <u>   </u> (B) Prevalence Index = B/A = <u>   </u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>   </u> )				
1. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
2. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
3. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
4. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
5. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
50% = <u>   </u> , 20% = <u>   </u>	<u>   </u>	= Total Cover		
<u>Herb Stratum</u> (Plot size: <u>   </u> )				
1. <u>Phleum pratense</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Poa pratensis</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>	
3. <u>Taraxacum officinale</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	
4. <u>Trifolium pratense</u>	<u>20</u>	<u>no</u>	<u>FACU</u>	
5. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
6. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
7. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
8. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
9. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
10. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
11. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
50% = <u>   </u> , 20% = <u>   </u>	<u>100</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: <u>   </u> )				
1. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	
50% = <u>   </u> , 20% = <u>   </u>	<u>   </u>	= Total Cover		
% Bare Ground in Herb Stratum <u>   </u>				
Remarks: *				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10YR 4/2	80	10YR 4/4	20	C	M	sand	
10-23	10YR 2/1	100					clay silt loam	
23-26	5Y 3/1	90	10YR 4/6	10	C	M	silt sand	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9)                      | <input type="checkbox"/> Water-Stained Leaves (B9)                 |
| <input type="checkbox"/> High Water Table (A2)                     | <b>(except MLRA 1, 2, 4A, and 4B)</b>                                   | <b>(MLRA 1, 2, 4A, and 4B)</b>                                     |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Salt Crust (B11)                               | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Aquatic Invertebrates (B13)                    | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                     | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)  | <input type="checkbox"/> Geomorphic Position (D2)                  |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)                  | <input type="checkbox"/> Shallow Aquitard (D3)                     |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)     | <input type="checkbox"/> FAC-Neutral Test (D5)                     |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b> | <input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                     | <input type="checkbox"/> Frost-Heave Hummocks (D7)                 |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |   |  |

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes  No

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

Remarks: None to 26" BGS

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/28/15  
 Applicant/Owner: MCollum (e. parcel) State: WA Sampling Point: SP 1.71  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none):      Slope (%):       
 Subregion (LRR): A Lat: 47.598868° Long: -120.670133° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <b>Dry season</b>			

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
<u>Tree Stratum</u> (Plot size: _____)				<b>Dominance Test Worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phleum pratense</u>	<u>90</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Lupinus polyphyllus</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%; text-align: center;">Yes <input checked="" type="checkbox"/></td> <td style="width: 15%; text-align: center;">No <input type="checkbox"/></td> <td colspan="2"></td> </tr> </table>					<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>													
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-27	10YR 2/1	100	_____	_____	_____	_____	silt loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: No alpha-alpha dip reaction

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes  No

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

Remarks: No alpha-alpha dip reaction; no water/saturation to 27"BGS

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

Project Site: Region 1 City/County: Leavenworth/Chelan Sampling Date: 4/28/15  
 Applicant/Owner: McCollum (e. parcel) State: WA Sampling Point: SP 1.72  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none):      Slope (%):       
 Subregion (LRR): A Lat: 47.598837° Long: -120.670433° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification:       
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Dry season; pit near wetland boundary</b>					

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: <u>    </u> Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% = _____, 20% = _____	_____	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Phleum pratense</u>	<u>80</u>	<u>yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = _____, 20% = _____	<u>80</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
% Bare Ground in Herb Stratum <u>20</u>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: \*



## REGION 3

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/8/15  
 Applicant/Owner: Scamahorn State: WA Sampling Point: SP 3.1  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none):      Slope (%):       
 Subregion (LRR): A Lat: 47.600856° Long: -120.668397° Datum:       
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover		<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>    </u></td> <td>x3 = <u>    </u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>    </u> (A)</td> <td><u>    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>    </u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>    </u> (A)	<u>    </u> (B)	Prevalence Index = B/A = <u>    </u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u>    </u>	x1 = <u>    </u>																			
FACW species <u>    </u>	x2 = <u>    </u>																			
FAC species <u>    </u>	x3 = <u>    </u>																			
FACU species <u>    </u>	x4 = <u>    </u>																			
UPL species <u>    </u>	x5 = <u>    </u>																			
Column Totals: <u>    </u> (A)	<u>    </u> (B)																			
Prevalence Index = B/A = <u>    </u>																				
<b>Sapling/Shrub Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
<b>Herb Stratum (Plot size: <u>    </u>)</b>																				
1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>																				
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	= Total Cover																		
% Bare Ground in Herb Stratum <u>    </u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes <input checked="" type="checkbox"/></td> <td style="width: 10%;">No <input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
Remarks: *																				



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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/8/15  
 Applicant/Owner: Scamahorn State: WA Sampling Point: SP 3.2  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 2  
 Subregion (LRR): A Lat: 47.601236° Long: -120.668438° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
<b>Herb Stratum (Plot size: _____)</b>				Column Totals: _____ (A)	_____ (B)
1. <i>Phalaris arundinacea</i>	<u>80</u>	<u>yes</u>	<u>FACW</u>	Prevalence Index = B/A = _____	
2. <i>Lupinus polyphyllus</i>	<u>20</u>	<u>yes</u>	<u>FAC</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	<u>100</u>	= Total Cover			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____					
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.					
<b>Hydrophytic Vegetation Present?</b> <span style="float: right;">Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></span>					
Remarks: *					

**SOIL**

Sampling Point: SP 3.2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-24	10YR 2/1	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>					<b>Hydric Soils Present?</b>			
Type: _____					Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Depth (inches): _____								
Remarks: 1 - 2 redox concentrations observed								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>23</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>20</u>
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: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/8/15  
 Applicant/Owner: Scamahorn State: WA Sampling Point: SP 3.3  
 Investigator(s): R. Walker, J. Dirkse, Grette Assocaites Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 2  
 Subregion (LRR): A Lat: 47.601403° Long: -120.668043° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Phleum pratense</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Taraxacum officinale</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>																	
3. <u>Vicia americana</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
4. <u>Plantago lanceolata</u>	<u>5</u>	<u>no</u>	<u>FACU</u>																	
5. <u>Trifolium pratense</u>	<u>5</u>	<u>no</u>	<u>FACU</u>																	
6. <u>Potentilla gracilis</u>	<u>5</u>	<u>no</u>	<u>FAC</u>																	
7. <u>Unid White Flower</u>	<u>5</u>	<u>no</u>	<u>:</u>																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 35%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes <input checked="" type="checkbox"/></td> <td style="width: 15%;">No <input type="checkbox"/></td> <td style="width: 35%;"></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
Remarks: *																				



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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/8/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.4  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 2  
 Subregion (LRR): A Lat: 47.602499° Long: -120.668411° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	1 (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	3 (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	33 (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	<u>Total % Cover of:</u> <span style="float: right;"><u>Multiply by:</u></span>	
2. _____	_____	_____	_____	OBL species	10 x1 = 10
3. _____	_____	_____	_____	FACW species	_____ x2 = _____
4. _____	_____	_____	_____	FAC species	30 x3 = 90
5. _____	_____	_____	_____	FACU species	50 x4 = 200
50% = _____, 20% = _____	_____	= Total Cover		UPL species	_____ x5 = _____
Herb Stratum (Plot size: _____)				Column Totals:	90 (A) <span style="margin-left: 20px;">300 (B)</span>
1. <i>Trifolium pratense</i>	30	yes	FACU	Prevalence Index = B/A = 3.33	
2. <i>Scirpus microcarpus</i>	10	no	OBL	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
3. <i>Phleum pratense</i>	30	yes	FAC		
4. <i>Taraxacum officinale</i>	20	yes	FACU		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	90	= Total Cover		<b>Hydrophytic Vegetation Present?</b>	
Woody Vine Stratum (Plot size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____					
Remarks: *					

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 2/1	100					sandy loam	
12-13	10YR 2/1	95	10YR 3/4	5	c	m	sandy grav. loam	
13-22	2.5Y 2/1	95	10YR 3/4	5	c	m	sandy grav. loam	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soils Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 18  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 17

Wetland Hydrology Present? Yes  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: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/8/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.5  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 2  
 Subregion (LRR): A Lat: 47.603096° Long: -120.668262° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum (Plot size: _____)</u>																				
1. <u>Salix exigua</u>	<u>10</u>	<u>yes</u>	<u>FACW</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum (Plot size: _____)</u>																				
1. <u>Phalaris arundinacea</u>	<u>70</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>Typha latifolia</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>																	
3. <u>Lupinus polyphyllus</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum (Plot size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes</td> <td style="width: 15%;">No</td> <td style="width: 40%;"></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	No			<input checked="" type="checkbox"/>	<input type="checkbox"/>										
<b>Hydrophytic Vegetation Present?</b>	Yes	No																		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>																		

Remarks: \_\_\_\_\_



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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/8/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.6  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 2  
 Subregion (LRR): A Lat: 47.603351° Long: -120.663659° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Scirpus microcarpus</u>	<u>40</u>	<u>yes</u>	<u>OBL</u>																	
2. <u>Equisetum arvense</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Carex spp.*</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
4. <u>Phleum pratense</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;">No</td> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 10%;"><input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	No	<input checked="" type="checkbox"/>	<input type="checkbox"/>												
<b>Hydrophytic Vegetation Present?</b>	Yes	No	<input checked="" type="checkbox"/>	<input type="checkbox"/>																

Remarks: \*Unidentified, assumed FAC



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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/8/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.7  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 2  
 Subregion (LRR): A Lat: 47.603661° Long: -120.663608° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

### VEGETATION – Use scientific names of plants

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
1. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
2. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Prevalence Index worksheet:</b>
1. _____	_____	_____	_____	<u>Total % Cover of:</u> <u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species _____ x1 = _____
3. _____	_____	_____	_____	FACW species _____ x2 = _____
4. _____	_____	_____	_____	FAC species <u>70</u> x3 = <u>210</u>
5. _____	_____	_____	_____	FACU species <u>30</u> x4 = <u>120</u>
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____ x5 = _____
<u>Herb Stratum</u> (Plot size: _____)				Column Totals: <u>100</u> (A) <u>330</u> (B)
1. <u>Phleum pratense</u>	<u>70</u>	<u>yes</u>	<u>FAC</u>	Prevalence Index = B/A = <u>3.3</u>
2. <u>Taraxacum officinale</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
3. <u>Trifolium pratense</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
4. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b>
5. _____	_____	_____	_____	<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation
6. _____	_____	_____	_____	<input type="checkbox"/> 2 - Dominance Test is >50%
7. _____	_____	_____	_____	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
8. _____	_____	_____	_____	<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
9. _____	_____	_____	_____	<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>
10. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
11. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% = _____, 20% = _____	<u>100</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
% Bare Ground in Herb Stratum _____				
Remarks: *				



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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/8/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.8  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 2  
 Subregion (LRR): A Lat: 47.603747° Long: -120.663606° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
<u>Tree Stratum</u> (Plot size: _____)				<b>Dominance Test Worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species <u>40</u></td> <td>x3 = <u>120</u></td> </tr> <tr> <td>FACU species <u>60</u></td> <td>x4 = <u>240</u></td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>360</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.6</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species <u>40</u>	x3 = <u>120</u>	FACU species <u>60</u>	x4 = <u>240</u>	UPL species _____	x5 = _____	Column Totals: <u>100</u> (A)	<u>360</u> (B)	Prevalence Index = B/A = <u>3.6</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species <u>40</u>	x3 = <u>120</u>																			
FACU species <u>60</u>	x4 = <u>240</u>																			
UPL species _____	x5 = _____																			
Column Totals: <u>100</u> (A)	<u>360</u> (B)																			
Prevalence Index = B/A = <u>3.6</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Phleum pratense</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Trifolium pratense</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>																	
3. <u>Plantago lanceolata</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>																	
4. <u>Taraxacum officinale</u>	<u>10</u>	<u>no</u>	<u>FACU</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
Remarks: *																				



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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/8/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.9  
 Investigator(s): R. Walker, J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%):      
 Subregion (LRR): A Lat: 47.602820° Long: -120.667586° Datum:      
 Soil Map Unit Name: Peoh silt loam NWI classification:      
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">1 (A)</span>  Total Number of Dominant Species Across All Strata: <span style="float: right;">3 (B)</span>  Percent of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">33 (A/B)</span>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>UNID mowed grasses*</u>	60	_____	FAC																	
2. <u>Trifolium pratense</u>	20	_____	FACU																	
3. <u>Taraxacum officinale</u>	20	_____	FACU																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes <input type="checkbox"/></td> <td style="width: 10%;">No <input checked="" type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>																		
Remarks: <span style="float: right;">*Assumed FAC</span>																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 2/1	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histsol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?**      Yes       No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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     No     Depth (inches): \_\_\_\_\_  
 Saturation Present?  
 (includes capillary fringe)    Yes     No     Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?**      Yes       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: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.10  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 2  
 Subregion (LRR): A Lat: 47.603858° Long: -120.666912° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

### VEGETATION – Use scientific names of plants

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% = _____, 20% = _____	_____	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Trifolium pratense</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Taraxacum officinale</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
3. <u>UNID grasses*</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = _____, 20% = _____	<u>100</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
% Bare Ground in Herb Stratum _____				<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: <u>*Assumed FAC</u>				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	2.5Y 3/1	100	_____	_____	_____	_____	silt/clay loam	_____
4-21+	2.5Y 3/1	90	7.5YR 4/4	10	c	m	silt/clay loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> _____			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>						<b>Hydric Soils Present?</b>		
Type: _____						Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Depth (inches): _____								
Remarks: Redox apparent; assumed relic; alpha-alpha dip. was not tested due to the dryness of the soil								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks:			

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.11  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): \_\_  
 Subregion (LRR): A Lat: 47.603857° Long: -120.667073° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

### VEGETATION – Use scientific names of plants

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
<u>Tree Stratum</u> (Plot size: _____)				<b>Dominance Test Worksheet:</b>	
1. _____	_____	_____	_____		Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
2. _____	_____	_____	_____		Total Number of Dominant Species Across All Strata: 1 (B)
3. _____	_____	_____	_____		Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____		<b>Total % Cover of:</b>
2. _____	_____	_____	_____		<b>Multiply by:</b>
3. _____	_____	_____	_____		OBL species _____ x1 = _____
4. _____	_____	_____	_____		FACW species _____ x2 = _____
5. _____	_____	_____	_____	FAC species _____ x3 = _____	
50% = _____, 20% = _____	_____	= Total Cover		FACU species _____ x4 = _____	
				UPL species _____ x5 = _____	
				Column Totals: _____ (A) _____ (B)	
				Prevalence Index = B/A = _____	
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>	
1. <u>Phalaris arundinacea</u>	100	yes	FACW		<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation
2. _____	_____	_____	_____		<input type="checkbox"/> 2 - Dominance Test is >50%
3. _____	_____	_____	_____		<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____	_____	_____	_____		<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____		<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>
6. _____	_____	_____	_____		<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7. _____	_____	_____	_____		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	100	= Total Cover			
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b>	
1. _____	_____	_____	_____		Yes <input checked="" type="checkbox"/>
2. _____	_____	_____	_____		No <input type="checkbox"/>
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____					
Remarks: *					

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	2.5Y 3/1	100	_____	_____	_____	_____	silt/clay loam	_____
9-21+	2.5Y 3/1	90	7.5YR 4/4	10	c	m	silt/clay loam	some rocks
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes  No

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

Remarks: alpha-alpha dip. was not tested due to the dryness of the soil

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.12  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%):      
 Subregion (LRR): A Lat: 47.603167° Long: -120.667693° Datum:      
 Soil Map Unit Name: Peoh silt loam NWI classification:      
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">1 (A)</span>  Total Number of Dominant Species Across All Strata: <span style="float: right;">1 (B)</span>  Percent of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">100 (A/B)</span>																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Phalaris arundinacea</u>	100	yes	FACW																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	100	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 10%;">No</td> <td style="width: 10%;"><input type="checkbox"/></td> </tr> </table>		Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>											
	Yes	<input checked="" type="checkbox"/>	No		<input type="checkbox"/>															
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
Remarks: *																				

Project Site: \_\_\_\_\_

Sampling Point: SP 3.12

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20+	N 2.5/	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?**      Yes        No   

Remarks:    assumed saturated >14 days; positive alpha-alpha dip reaction

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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        No        Depth (inches):   9    
 Saturation Present? (includes capillary fringe)    Yes        No        Depth (inches):   0  

**Wetland Hydrology Present?**      Yes        No   

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

Remarks:    assumed saturated >14 days; positive alpha-alpha dip reaction

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.13  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%):      
 Subregion (LRR): A Lat: 47.603512° Long: -120.667381° Datum:      
 Soil Map Unit Name: Peoh silt loam NWI classification:      
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
<u>Tree Stratum</u> (Plot size: _____)				<b>Dominance Test Worksheet:</b>	
1. _____	_____	_____	_____		Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
2. _____	_____	_____	_____		Total Number of Dominant Species Across All Strata: 1 (B)
3. _____	_____	_____	_____		Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____		<b>Total % Cover of:</b>
2. _____	_____	_____	_____		<b>Multiply by:</b>
3. _____	_____	_____	_____		OBL species _____ x1 = _____
4. _____	_____	_____	_____		FACW species _____ x2 = _____
5. _____	_____	_____	_____	FAC species _____ x3 = _____	
50% = _____, 20% = _____	_____	= Total Cover		FACU species _____ x4 = _____	
				UPL species _____ x5 = _____	
				Column Totals: _____ (A) _____ (B)	
				Prevalence Index = B/A = _____	
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>	
1. <i>Phalaris arundinacea</i>	100	yes	FACW		<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation
2. _____	_____	_____	_____		<input type="checkbox"/> 2 - Dominance Test is >50%
3. _____	_____	_____	_____		<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____	_____	_____	_____		<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____		<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>
6. _____	_____	_____	_____		<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7. _____	_____	_____	_____		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	100	= Total Cover			
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b>	
1. _____	_____	_____	_____		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____					
Remarks: *					

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20+	N 2.5/	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: assumed inundated >14 days; positive alpha-alpha dip reaction

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 7  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 3

**Wetland Hydrology Present?** Yes  No

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

Remarks: positive alpha-alpha dip reaction

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.14  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): \_\_  
 Subregion (LRR): A Lat: 47.603658° Long: -120.667248° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. <u>Crataegus douglasii</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>20</u>	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>yes</u>	<u>FACW</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 35%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;">No</td> <td style="width: 10%;"></td> <td style="width: 35%;"></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	No				<input checked="" type="checkbox"/>	<input type="checkbox"/>									
<b>Hydrophytic Vegetation Present?</b>	Yes	No																		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>																		

Remarks: \*

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 2/1	100	_____	_____	_____	_____	_____	_____
4-20+	N 2.5/	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: assumed saturated >14 days; positive alpha-alpha dip reaction

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 5  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 2

**Wetland Hydrology Present?** Yes  No

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

Remarks: positive alpha-alpha dip reaction

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.15  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): \_\_  
 Subregion (LRR): A Lat: 47.603795° Long: -120.667372° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">1 (A)</span>  Total Number of Dominant Species Across All Strata: <span style="float: right;">1 (B)</span>  Percent of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">100 (A/B)</span>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <i>Phalaris arundinacea</i>	100	yes	FACW																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	100	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%; text-align: center;">Yes</td> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 10%; text-align: center;">No</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>												
<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>																

Remarks: \*

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20+	10YR 2/1	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: assumed saturated >14 days

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 10  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 6

**Wetland Hydrology Present?** Yes  No

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

Remarks: very faint alpha-alpha dip reaction 10" and below only

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.16  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 5  
 Subregion (LRR): A Lat: 47.603345° Long: -120.666931° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species <u>50</u></td> <td>x3 = <u>150</u></td> </tr> <tr> <td>FACU species <u>50</u></td> <td>x4 = <u>200</u></td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>350</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.5</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species <u>50</u>	x3 = <u>150</u>	FACU species <u>50</u>	x4 = <u>200</u>	UPL species _____	x5 = _____	Column Totals: <u>100</u> (A)	<u>350</u> (B)	Prevalence Index = B/A = <u>3.5</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species <u>50</u>	x3 = <u>150</u>																			
FACU species <u>50</u>	x4 = <u>200</u>																			
UPL species _____	x5 = _____																			
Column Totals: <u>100</u> (A)	<u>350</u> (B)																			
Prevalence Index = B/A = <u>3.5</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phleum pratense</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Trifolium pratense</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>																	
3. <u>Taraxacum officinale</u>	<u>20</u>	<u>no</u>	<u>FACU</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes <input type="checkbox"/></td> <td style="width: 10%;">No <input checked="" type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>																		
Remarks: *																				



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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.17  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 5  
 Subregion (LRR): A Lat: 47.603173° Long: -120.666928° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% = _____, 20% = _____	_____	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Phleum pratense</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>	
2. <u>UNID mowed grasses*</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>	
3. <u>Scirpus microcarpus</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = _____, 20% = _____	<u>100</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
% Bare Ground in Herb Stratum _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>*Assumed FAC</u>				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10YR 2/1	100	_____	_____	_____	_____	silt/clay loam	_____
9-25	N 2.5/	98	7.5YR 4/4	2	c	m	silt/clay loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: Assumed saturated <12" for more than 14 consecutive days

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 10  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 8

**Wetland Hydrology Present?** Yes  No

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

Remarks: Ground surface is ~saturated--possibly due to recent rain. Positive alpha-alpha dip. reaction at 8"BGS

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.18  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 5  
 Subregion (LRR): A Lat: 47.603000° Long: -120.666914° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">1 (A)</span>  Total Number of Dominant Species Across All Strata: <span style="float: right;">1 (B)</span>  Percent of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">100 (A/B)</span>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phleum pratense</u>	95	yes	FAC																	
2. <u>Taraxacum officinale</u>	10	no	FACU																	
3. <u>Trifolium pratense</u>	10	no	FACU																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	100	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
<b>Hydrophytic Vegetation Present?</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Yes</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;">No</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>				Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>													
Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>																	
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 2/1	100					silt loam	
12+	2.5Y 2.5/1	90	7.5YR 4/4	10	c	m	silty clay loam	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 19  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 18

**Wetland Hydrology Present?** Yes  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: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.19  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): convex Slope (%): 5  
 Subregion (LRR): A Lat: 47.602936° Long: -120.665735° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">1 (A)</span>  Total Number of Dominant Species Across All Strata: <span style="float: right;">1 (B)</span>  Percent of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">100 (A/B)</span>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <i>Phleum pratense</i>	95	yes	FAC																	
2. <i>Plantago lanceolata</i>	5	no	FACU																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	100	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks: *																				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-24	<u>2.5Y 2.5/1</u>	<u>99</u>	<u>7.5YR 4/4</u>	<u>1</u>	<u>c</u>	<u>m</u>	<u>silt loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
<sup>1</sup> Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<b>Restrictive Layer (if present):</b>					<b>Hydric Soils Present?</b>			
Type: _____					Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Depth (inches): _____								
Remarks: Redox features very sparse, too sparse to qualify as Redox Dark Surface (F6)								

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Depth (inches): _____			
Depth (inches): _____			
Depth (inches): _____			
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: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.20  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 5  
 Subregion (LRR): A Lat: 47.602769° Long: -120.665229° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks: <b>pit dug in small lobe of Scirpus south of the dirt road on Brender property</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum (Plot size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum (Plot size: _____)</u>																				
1. <u>Scirpus microcarpus</u>	<u>50</u>	<u>yes</u>	<u>OBL</u>																	
2. <u>Phleum pratense</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum (Plot size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes</td> <td style="width: 15%;">No</td> <td style="width: 30%;"></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	No			<input checked="" type="checkbox"/>	<input type="checkbox"/>										
<b>Hydrophytic Vegetation Present?</b>	Yes	No																		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>																		
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-13	10YR 2/1	90	7.5Y 4/4	10	c	m	silt/clay loam	_____
13-24	N 2.5/	90	7.5Y 4/4	10	c	m	silt/clay loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9)                      | <input type="checkbox"/> Water-Stained Leaves (B9)                 |
| <input type="checkbox"/> High Water Table (A2)                     | <b>(except MLRA 1, 2, 4A, and 4B)</b>                                   | <b>(MLRA 1, 2, 4A, and 4B)</b>                                     |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Salt Crust (B11)                               | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Aquatic Invertebrates (B13)                    | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                     | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)  | <input type="checkbox"/> Geomorphic Position (D2)                  |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input checked="" type="checkbox"/> Presence of Reduced Iron (C4)       | <input type="checkbox"/> Shallow Aquitard (D3)                     |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)     | <input checked="" type="checkbox"/> FAC-Neutral Test (D5)          |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b> | <input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                     | <input type="checkbox"/> Frost-Heave Hummocks (D7)                 |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |   |  |

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 15  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 6

**Wetland Hydrology Present?** Yes  No

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

Remarks: Saturation appears to be associated with water table as water is very slowly filling pit; saturation level is consistent around the pit wall; assumed groundwater will eventually rise to near saturation level. Positive alpha-alpha dipyrindyl reaction to surface.

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.21  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 5  
 Subregion (LRR): A Lat: 47.602879° Long: -120.665252° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Scirpus microcarpus</u>	<u>40</u>	<u>yes</u>	<u>OBL</u>																	
2. <u>Phleum pratense</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Phalaris arundinace</u>	<u>40</u>	<u>yes</u>	<u>FACW</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-24	N 2.5/	90	7.5Y 4/4	10	c	m	silt loam	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 8

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

**Wetland Hydrology Present?** Yes  No

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

Remarks: Positive alpha-alpha dip reaction as high as 4"; strongly at 6"

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.22  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 5  
 Subregion (LRR): A Lat: 47.602934° Long: -120.665248° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <i>Phalaris arundinace</i>	<u>60</u>	<u>yes</u>	<u>FACW</u>																	
2. <i>Phleum pratense</i>	<u>40</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	2.5Y 2.5/1	100					silt loam	
9-11	2.5Y 2.5/1	95	7.5YR 4/4	5	c	m	silt loam	
11-24	N 2.5/	95	7.5YR 4/4	5	c	m, pl	silt loam	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soils Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 17  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 13

Wetland Hydrology Present? Yes  No

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

Remarks: alpha-alpha dipyrldyl reaction faint at 11", strongly at 12" and below

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.23  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 5  
 Subregion (LRR): A Lat: 47.602619° Long: -120.665208° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phleum pratense</u>	<u>80</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Scirpus microcarpus</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes <input checked="" type="checkbox"/></td> <td style="width: 10%;">No <input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 2/1	100	_____	_____	_____	_____	_____	_____
8-24	N 2.5/	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: no alpha-alpha dipyrindyl reaction

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 14.5  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 12.5

**Wetland Hydrology Present?** Yes  No

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

Remarks: no alpha-alpha dip reaction

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.24  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): A Lat: 47.601347° Long: -120.662978° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>67</u> (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
<b>Herb Stratum (Plot size: _____)</b>				Column Totals: _____ (A)	_____ (B)
1. <u>Unid. grasses*</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>	Prevalence Index = B/A = _____	
2. <u>Plantago lanceolata</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b>	
3. <u>Potentilla gracilis</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>		
4. <u>Taraxacum officinale</u>	<u>10</u>	<u>no</u>	<u>FACU</u>		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____	<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
8. _____	_____	_____	_____	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
9. _____	_____	_____	_____	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
10. _____	_____	_____	_____	<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
11. _____	_____	_____	_____	<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>	
50% = _____, 20% = _____	<u>100</u>	= Total Cover		<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Woody Vine Stratum (Plot size: _____)</b>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover		<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
% Bare Ground in Herb Stratum _____					

Remarks: \*Mowed during growing season; assumed FAC

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10YR 2/1	100	_____	_____	_____	_____	silt loam	_____
10-17	2.5Y 2.5/1	100	_____	_____	_____	_____	silt loam	_____
17-22+	2.5Y 3/1	99	7.5YR 4/4	<1	_____	_____	silt loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes  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: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.25  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 2  
 Subregion (LRR): A Lat: 47.601747° Long: -120.663425° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Phleum pratense</u>	<u>95</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Taraxacum officinale</u>	<u>5</u>	<u>no</u>	<u>FACU</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 15%;">Yes <input checked="" type="checkbox"/></td> <td style="width: 15%;">No <input type="checkbox"/></td> <td style="width: 40%;"></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
Remarks: *																				



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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.26  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 3  
 Subregion (LRR): A Lat: 47.602110° Long: -120.662640° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: <b>Pit dug in vicinity of wetland previously delineated along drainage in east side of property</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Phleum pratense</u>	<u>100</u>	<u>yes</u>	<u>FAC</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 10%;">No</td> <td style="width: 10%;"><input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>												
<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>																
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-24+	2.5Y 3/1	99	7.5YR 4/4	1	c	m	silt loam	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes  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: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/9/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.27  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 6  
 Subregion (LRR): A Lat: 47.603298° Long: -120.662774° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	1 (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	2 (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	100 (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	<u>Total % Cover of:</u> <span style="float: right;"><u>Multiply by:</u></span>	
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
Herb Stratum (Plot size: _____)				Column Totals: _____ (A)	_____ (B)
1. <i>Phleum pratense</i>	70	yes	FAC	Prevalence Index = B/A = _____	
2. <i>Taraxacum officinale</i>	20	yes	FACU		
3. <i>Phalaris arundinacea</i>	10	no	FACW		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	100	= Total Cover			
Woody Vine Stratum (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____				<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: *					



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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/10/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.28  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 5  
 Subregion (LRR): A Lat: 47.603595° Long: -120.663129° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

### VEGETATION – Use scientific names of plants

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% = _____, 20% = _____	_____	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Phleum pratense</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Taraxacum officinale</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
3. <u>Scirpus microcarpus</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = _____, 20% = _____	<u>100</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
% Bare Ground in Herb Stratum _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: *				



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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/10/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.29  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 5  
 Subregion (LRR): A Lat: 47.603416° Long: -120.663103° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">1 (A)</span>  Total Number of Dominant Species Across All Strata: <span style="float: right;">1 (B)</span>  Percent of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">100 (A/B)</span>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Phleum pratense</u>	80	yes	FAC																	
2. <u>Trifolium pratense</u>	10	no	FACU																	
3. <u>Taraxacum officinale</u>	10	no	FACU																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	100	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">Yes</td> <td style="width: 15%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 10%; text-align: center;">No</td> <td style="width: 30%; text-align: center;"><input type="checkbox"/></td> </tr> </table>					Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>												
	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>																
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 3/1	100						
8-24	2.5Y 2.5/1	90	7.5YR 4/4	10				
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 18  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 11

**Wetland Hydrology Present?** Yes  No

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

Remarks: water table assumed to rise to near saturation level

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/10/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.30  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 5  
 Subregion (LRR): A Lat: 47.603313° Long: -120.663067° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
<u>Sapling/Shrub Stratum (Plot size: _____)</u>				<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
<u>Herb Stratum (Plot size: _____)</u>				Column Totals: _____ (A)	_____ (B)
1. <u>Scirpus microcarpus</u>	<u>70</u>	<u>yes</u>	<u>OBL</u>	Prevalence Index = B/A = _____	
2. <u>Phleum pratense</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>		
3. <u>Taraxacum officinale</u>	<u>10</u>	<u>no</u>	<u>FACU</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	<u>100</u>	= Total Cover			
<u>Woody Vine Stratum (Plot size: _____)</u>				<b>Hydrophytic Vegetation Indicators:</b>	
1. _____	_____	_____	_____	<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
2. _____	_____	_____	_____	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
50% = _____, 20% = _____	_____	= Total Cover		<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
% Bare Ground in Herb Stratum _____				<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>	
				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: *					

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 2/1	100	_____	_____	_____	_____	silt loam	_____
8-24	2.5Y 2.5/1	90	7.5YR 4/4	10	c	m	sandy silt loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9)                      | <input type="checkbox"/> Water-Stained Leaves (B9)                 |
| <input checked="" type="checkbox"/> High Water Table (A2)          | <b>(except MLRA 1, 2, 4A, and 4B)</b>                                   | <b>(MLRA 1, 2, 4A, and 4B)</b>                                     |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Salt Crust (B11)                               | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Aquatic Invertebrates (B13)                    | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                     | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)  | <input type="checkbox"/> Geomorphic Position (D2)                  |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)                  | <input type="checkbox"/> Shallow Aquitard (D3)                     |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)     | <input type="checkbox"/> FAC-Neutral Test (D5)                     |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b> | <input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                     | <input type="checkbox"/> Frost-Heave Hummocks (D7)                 |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |   |  |

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 17  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 6

**Wetland Hydrology Present?** Yes  No

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

Remarks: Water table assumed to rise to saturation level with time

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/10/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.31  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 5  
 Subregion (LRR): A Lat: 47.602754° Long: -120.664210° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks:			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">1 (A)</span>  Total Number of Dominant Species Across All Strata: <span style="float: right;">1 (B)</span>  Percent of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">100 (A/B)</span>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Phleum pratense</u>	80	yes	FAC																	
2. <u>Taraxacum officinale</u>	15	no	FACU																	
3. <u>Equisetum pratense</u>	5	no	FACW																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	100	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks: *																				

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	N 2.5/	100	_____	_____	_____	_____	silt/clay loam	_____
8-24	N 2.5/	97	7.5YR 4/4	3	c	m	sandy silt loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)				
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soils Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:    alpha-alpha dip reaction starting at 4"

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>22</u> Saturation Present? (includes capillary fringe)    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>6</u>	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	---

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

Remarks:    water table assumed to rise to saturation level with time; alpha-alpha dip reaction 4" and below

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

Project Site: Region 3 City/County: Leavenworth/Chelan Sampling Date: 4/10/15  
 Applicant/Owner: Brender State: WA Sampling Point: SP 3.32  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 5  
 Subregion (LRR): A Lat: 47.602702° Long: -120.664219° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	1 (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	2 (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	50 (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	<u>Total % Cover of:</u> <u>Multiply by:</u>	
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species <u>80</u>	x3 = <u>240</u>
5. _____	_____	_____	_____	FACU species <u>20</u>	x4 = <u>80</u>
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
Herb Stratum (Plot size: _____)				Column Totals:	<u>100</u> (A) <u>320</u> (B)
1. <u>Phleum pratense</u>	<u>80</u>	<u>yes</u>	<u>FAC</u>	Prevalence Index = B/A = <u>3.2</u>	
2. <u>Taraxacum officinale</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	<u>100</u>	= Total Cover			
Woody Vine Stratum (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b>	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____				Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: *					

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-24	10YR 2/1	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes  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: Scamahorn East City/County: Leavenworth Sampling Date: 7-1-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-1  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope (%): <1  
 Subregion (LRR): A Lat: 47.601283 Long: -120.658946 Datum: WGS 84  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Remarks: <u>Drier than normal for this time of year.</u>			

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
= Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ 5 - Wetland Non-Vascular Plants <sup>1</sup> _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
= Total Cover				
<b>Herb Stratum</b> (Plot size: _____)				
1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
<b>% Bare Ground in Herb Stratum</b> _____				

Remarks: \_\_\_\_\_

**SOIL**

Sampling Point: SP-1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	2.5Y 3/1	100	—				silt loam	
20-48	2.5Y 4/1	60	5Y 4/2	40			silt loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

2 cm Muck (A10)  
 Red Parent Material (TF2)  
 Very Shallow Dark Surface (TF12)  
 Other (Explain in Remarks)

<sup>3</sup>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:**

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes _____ No <u>X</u>	Depth (inches): _____	<b>Wetland Hydrology Present? Yes _____ No <u>X</u></b>
Water Table Present? Yes _____ No <u>X</u>	Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes _____ No <u>X</u>	Depth (inches): _____	

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: Scamahorn East City/County: Leavenworth Sampling Date: 7-1-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-2  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope (%): <1  
 Subregion (LRR): A Lat: 47.601225 Long: -120.658949 Datum: WGS84  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Drier than normal for this time of year.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Phalaris arundinacea</u> <u>60</u> <u>Y</u> <u>FACW</u> 2. <u>Phleum pratense</u> <u>40</u> <u>Y</u> <u>FAC</u> 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
<b>% Bare Ground in Herb Stratum</b> _____ = Total Cover				
Remarks: _____				

**SOIL**

Sampling Point: SP-2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-33	SY 3/2	100	—					
33-40	SY 3/2	98	10YR 4/6	2				
40-48	SY 3/2	60	10YR 5/3	30				
			10YR 4/6	10				

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:  
*No redox to 27"; 33" redox around a rock.*

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**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:  
*Soil has very little moisture to 27"; slightly moist 35-48"; no saturation.*

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

Project/Site: Scamahorn East City/County: Leavenworth Sampling Date: 7-1-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-3  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope (%): 1  
 Subregion (LRR): A Lat: 47.601225 Long: -120.659147 Datum: NAD83  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Drier than normal for this time of year.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				OBL species _____ x 1 = _____
1. _____	_____	_____	_____	FACW species <u>40</u> x 2 = <u>80</u>
2. _____	_____	_____	_____	FAC species <u>15</u> x 3 = <u>45</u>
3. _____	_____	_____	_____	FACU species _____ x 4 = _____
4. _____	_____	_____	_____	UPL species _____ x 5 = _____
5. _____	_____	_____	_____	Column Totals: <u>55</u> (A) <u>125</u> (B)
_____ = Total Cover				Prevalence Index = B/A = <u>2.27</u>
Herb Stratum (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. <u>Phalaris arundinacea</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Rumex crispus</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	% Bare Ground in Herb Stratum <u>45</u> _____ = Total Cover
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	Woody Vine Stratum (Plot size: _____)
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	1. _____
10. _____	_____	_____	_____	2. _____
11. _____	_____	_____	_____	
<u>55</u> = Total Cover				
Remarks:				

**SOIL**

Sampling Point: SP-3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	2.5Y 3/1	95	7.5YR 4/6	5	C	M	silt loam	
6-27	2.5Y 3/1	100	-					
27-48	2.5Y 3/2	100	-					

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

Soil moist from ~6", but no saturation to 48".

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

Project/Site: Scamahorn East City/County: Leavenworth Sampling Date: 7-1-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-4  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope (%): <1  
 Subregion (LRR): A Lat: 47.601304 Long: -120.659129 Datum: NAD83  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Drier than normal for this time of year. In old channel.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Phalaris arundinacea</u> <u>100</u> <u>Y</u> <u>FACW</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____ = Total Cover				
Remarks: _____				

**SOIL**

Sampling Point: **SP-4**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 3/2	100	-				Sandy loam	
8-12	N 2.5	90	10YR 4/6	10	C	M, PL	silt loam	
12-30	N 2.5	100	-				silt loam	
30-48	2.5Y 3/1	95	10YR 4/6	5	C	M	silt loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:  
 No saturation to 48" BGS; explained by leaking ditch, since repaired.

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

Project/Site: Scamahorn East City/County: Leavenworth Sampling Date: 7-1-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-5  
 Investigator(s): J. Dirkse Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): <1  
 Subregion (LRR): A Lat: 47.601336 Long: -120.659128 Datum: WGS84  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydic Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks: <u>Drier than normal for this time of year.</u>		

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: _____)				
1. <u>Phalaris arundinacea</u>	<u>95</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>95</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

**Hydrophytic Vegetation Indicators:**  
 \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation  
 2 - Dominance Test is >50%  
 \_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_ 5 - Wetland Non-Vascular Plants<sup>1</sup>  
 \_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No

**SOIL**

Sampling Point: SP-5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 2/1	100	-				silt loam	
8-12	10YR 2/1	99	10YR 4/6	1	C	M	gravelly loam	
12-18	10YR 2/1	100	-				silt loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

2 cm Muck (A10)  
 Red Parent Material (TF2)  
 Very Shallow Dark Surface (TF12)  
 Other (Explain in Remarks)

<sup>3</sup>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

Remarks: problematic soil: inundated >14 days

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<u>Primary Indicators (minimum of one required; check all that apply)</u>	<u>Secondary Indicators (2 or more required)</u>
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	
<input type="checkbox"/> Other (Explain in Remarks)	

**Field Observations:**

Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	

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

Remarks: Pit dug within ditch channel with surface water; water enters the pit from the top (no groundwater observed.)

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

Project/Site: Scamahorn East City/County: Leavenworth Sampling Date: 7-1-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-6  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope (%): <1  
 Subregion (LRR): A Lat: 47.601373 Long: -120.659123 Datum: NAD83  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Drier than normal for this time of year.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>
_____ = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				OBL species _____ x 1 = _____
1. _____	_____	_____	_____	FACW species <u>80</u> x 2 = <u>160</u>
2. _____	_____	_____	_____	FAC species _____ x 3 = _____
3. _____	_____	_____	_____	FACU species _____ x 4 = _____
4. _____	_____	_____	_____	UPL species <u>20</u> x 5 = <u>100</u>
5. _____	_____	_____	_____	Column Totals: <u>100</u> (A) <u>260</u> (B)
_____ = Total Cover				Prevalence Index = B/A = <u>2.6</u>
<b>Herb Stratum (Plot size: _____)</b>				<b>Hydrophytic Vegetation Indicators:</b>
1. <u>phalaris arundinacea</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Potentilla recta</u>	<u>20</u>	<u>Y</u>	<u>NL(UPL)</u>	<input type="checkbox"/> 2 - Dominance Test is >50%
3. _____	_____	_____	_____	<input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____	_____	_____	_____	<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>
6. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
<b>% Bare Ground in Herb Stratum _____</b>				
Remarks:				

**SOIL**

Sampling Point: SP-6

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10 YR 3/1	100	-					

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

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

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                         | <b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b><br><input type="checkbox"/> 2 cm Muck (A10)<br><input type="checkbox"/> Red Parent Material (TF2)<br><input type="checkbox"/> Very Shallow Dark Surface (TF12)<br><input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                     |   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |   |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                     |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                  |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)               |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                   |   |
- <sup>3</sup>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:**

- |   |   |
|---|---|
| <u>Primary Indicators (minimum of one required; check all that apply)</u>         | <u>Secondary Indicators (2 or more required)</u>                                  |
| <input type="checkbox"/> Surface Water (A1)                                       | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)        |
| <input type="checkbox"/> High Water Table (A2)                                    | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> Saturation (A3)  | <input type="checkbox"/> Drainage Patterns (B10)                                  |
| <input type="checkbox"/> Water Marks (B1)   | <input type="checkbox"/> Dry-Season Water Table (C2)                              |
| <input type="checkbox"/> Sediment Deposits (B2)                                   | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                |
| <input type="checkbox"/> Drift Deposits (B3)                                      | <input type="checkbox"/> Geomorphic Position (D2)                                 |
| <input type="checkbox"/> Algal Mat or Crust (B4)                                  | <input type="checkbox"/> Shallow Aquitard (D3)                                    |
| <input type="checkbox"/> Iron Deposits (B5)                                       | <input type="checkbox"/> FAC-Neutral Test (D5)                                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                                 | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                           |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)                | <input type="checkbox"/> Frost-Heave Hummocks (D7)                                |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)                  |   |
| <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) |   |
| <input type="checkbox"/> Salt Crust (B11)   |   |
| <input type="checkbox"/> Aquatic Invertebrates (B13)                              |   |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                               |   |
| <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)            |   |
| <input type="checkbox"/> Presence of Reduced Iron (C4)                            |   |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)               |   |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)                  |   |
| <input type="checkbox"/> Other (Explain in Remarks)                               |   |

**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:

across fence, almost under bus garage roof.

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

Project/Site: Scamahorn East City/County: Leavenworth Sampling Date: 7-1-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-7  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope (%): <1  
 Subregion (LRR): A Lat: 47.601342 Long: -120.658656 Datum: WGS84  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: <u>Drier than normal for this time of year.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	OBL species _____ x 1 = _____
2. _____	_____	_____	_____	FACW species _____ x 2 = _____
3. _____	_____	_____	_____	FAC species _____ x 3 = _____
4. _____	_____	_____	_____	FACU species _____ x 4 = _____
5. _____	_____	_____	_____	UPL species _____ x 5 = _____
_____ = Total Cover				Column Totals: _____ (A) _____ (B)
Herb Stratum (Plot size: _____)				Prevalence Index = B/A = _____
1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>X</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: _____ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ 5 - Wetland Non-Vascular Plants <sup>1</sup> _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
% Bare Ground in Herb Stratum _____				
Remarks: _____				

**SOIL**

Sampling Point: SP-7

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 3/1	100	-					

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

2 cm Muck (A10)

Red Parent Material (TF2)

Very Shallow Dark Surface (TF12)

Other (Explain in Remarks)

<sup>3</sup>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:**

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**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: Scamahorn East City/County: Leavenworth Sampling Date: 7-1-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-8  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): <1  
 Subregion (LRR): A Lat: 47.601357 Long: -120.658656 Datum: NAD83  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Remarks: <u>Drier than normal for this time of year.</u>			

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
_____ = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b>				
1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
<b>% Bare Ground in Herb Stratum _____</b>				
Hydrophytic Vegetation Present? Yes <u>X</u> No _____				
Remarks:				

**SOIL**

Sampling Point: SP-8

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/1	100	—					

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

**Remarks:**

*Saturated > 14 days*

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)
- 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  No  Depth (inches): 16  
 Saturation Present? Yes  No  Depth (inches): 0  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

**Remarks:**

*within vegetated channel.*

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

Project/Site: Scamahorn East City/County: Leavenworth Sampling Date: 7-1-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-9  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope (%): <1  
 Subregion (LRR): A Lat: 47.601373 Long: -120.658655 Datum: WGS84  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Drier than normal for this time of year.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>
_____ = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				OBL species _____ x 1 = _____
1. _____	_____	_____	_____	FACW species _____ x 2 = _____
2. _____	_____	_____	_____	FAC species _____ x 3 = _____
3. _____	_____	_____	_____	FACU species _____ x 4 = _____
4. _____	_____	_____	_____	UPL species _____ x 5 = _____
5. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
_____ = Total Cover				Prevalence Index = B/A = _____
<b>Herb Stratum (Plot size: _____)</b>				<b>Hydrophytic Vegetation Indicators:</b>
1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>	___ 1 - Rapid Test for Hydrophytic Vegetation
2. _____	_____	_____	_____	<u>X</u> 2 - Dominance Test is >50%
3. _____	_____	_____	_____	___ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____	_____	_____	_____	___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	___ 5 - Wetland Non-Vascular Plants <sup>1</sup>
6. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	% Bare Ground in Herb Stratum _____ = Total Cover
11. _____	_____	_____	_____	
<b>Woody Vine Stratum (Plot size: _____)</b>				Remarks:
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	

**SOIL**

Sampling Point: SP-9

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 2/1	100	-					

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	
<input type="checkbox"/> Other (Explain in Remarks)	

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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: Scamahorn East City/County: Leavenworth Sampling Date: 7-16-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-10  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope (%): 21  
 Subregion (LRR): A Lat: 47.601283 Long: -120.662714 Datum: WGS84  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u> Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Drier than normal for this time of year.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)																
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)																
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)																
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species <u>15</u></td> <td>x 2 = <u>30</u></td> </tr> <tr> <td>FAC species <u>30</u></td> <td>x 3 = <u>90</u></td> </tr> <tr> <td>FACU species <u>25</u></td> <td>x 4 = <u>100</u></td> </tr> <tr> <td>UPL species <u>30</u></td> <td>x 5 = <u>150</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>370</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.7</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species <u>15</u>	x 2 = <u>30</u>	FAC species <u>30</u>	x 3 = <u>90</u>	FACU species <u>25</u>	x 4 = <u>100</u>	UPL species <u>30</u>	x 5 = <u>150</u>	Column Totals: <u>100</u> (A)	<u>370</u> (B)	Prevalence Index = B/A = <u>3.7</u>	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species <u>15</u>	x 2 = <u>30</u>																			
FAC species <u>30</u>	x 3 = <u>90</u>																			
FACU species <u>25</u>	x 4 = <u>100</u>																			
UPL species <u>30</u>	x 5 = <u>150</u>																			
Column Totals: <u>100</u> (A)	<u>370</u> (B)																			
Prevalence Index = B/A = <u>3.7</u>																				
_____ = Total Cover																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____ = Total Cover																				
<b>Herb Stratum (Plot size: <u>5 ft</u>)</b>																				
1. <u>potentilla recta</u>	<u>30</u>	<u>Y</u>	<u>NL (UPL)</u>	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>																
2. <u>Phleum pratense</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>																	
3. <u>Phalaris arundinacea</u>	<u>15</u>	<u>N</u>	<u>FACW</u>																	
4. <u>Thlaspi arvense</u>	<u>15</u>	<u>N</u>	<u>FACU</u>																	
5. <u>Lactuca scariola</u>	<u>10</u>	<u>N</u>	<u>FACU</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
<u>100</u> = Total Cover																				
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>																
2. _____	_____	_____	_____																	
_____ = Total Cover																				
<b>% Bare Ground in Herb Stratum _____</b>																				
Remarks: <u>Heavily grazed by goats</u>																				

**SOIL**

Sampling Point: SP-10

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	2.5Y 2.5/1	100	-				Sandy grav. loam	
8-24	2.5Y 2.5/1	95	7.5YR 3/4	5	C	M, PL	sandy grav. loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  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: Scamahorn East City/County: Leavenworth Sampling Date: 7-16-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-11  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): CONCAVE Slope (%): <1  
 Subregion (LRR): A Lat: 47.601283 Long: -120.662670 Datum: WGS84  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: <u>Drier than normal for this time of year.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Present?</b> Yes _____ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: _____				

**SOIL**

Sampling Point: SP-11

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	2.5Y 2.5/1	100	-					
8-20	2.5Y 2.5/1	95	7.5YR 3/4	5				

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	
<input type="checkbox"/> Other (Explain in Remarks)	

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): ~3"

Water Table Present? Yes  No  Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 19

Wetland Hydrology Present? Yes  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: Scamahorn East City/County: Leavenworth Sampling Date: 7-16-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-12  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): A Lat: 47.601259 Long: -120.662272 Datum: WGS84  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: <u>Drier than normal for this time of year.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Phalaris amydinacea</u> <u>100</u> <u>Y</u> <u>FACW</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
<b>% Bare Ground in Herb Stratum</b> _____ = Total Cover				
Remarks: _____				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____

**SOIL**

Sampling Point: SP-12

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	2.5Y 2.5/1	100					silt loam	
2-20	N 2.5	90	7.5YR 4/4	10	C	M, PL	silt loam	

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

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

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                         | <b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b><br><input type="checkbox"/> 2 cm Muck (A10)<br><input type="checkbox"/> Red Parent Material (TF2)<br><input type="checkbox"/> Very Shallow Dark Surface (TF12)<br><input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                     |   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |   |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                     |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input checked="" type="checkbox"/> Redox Dark Surface (F6)       |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)               |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                   |   |
- <sup>3</sup>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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

- |   |  |
|---|--|
| <u>Primary Indicators (minimum of one required; check all that apply)</u> | <u>Secondary Indicators (2 or more required)</u>                           |
| <input type="checkbox"/> Surface Water (A1)                               | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2)                            | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input checked="" type="checkbox"/> Saturation (A3)                       | <input type="checkbox"/> Drainage Patterns (B10)                           |
| <input type="checkbox"/> Water Marks (B1)                                 | <input type="checkbox"/> Dry-Season Water Table (C2)                       |
| <input type="checkbox"/> Sediment Deposits (B2)                           | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)         |
| <input type="checkbox"/> Drift Deposits (B3)                              | <input type="checkbox"/> Geomorphic Position (D2)                          |
| <input type="checkbox"/> Algal Mat or Crust (B4)                          | <input type="checkbox"/> Shallow Aquitard (D3)                             |
| <input type="checkbox"/> Iron Deposits (B5)                               | <input type="checkbox"/> FAC-Neutral Test (D5)                             |
| <input type="checkbox"/> Surface Soil Cracks (B6)                         | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)        | <input type="checkbox"/> Frost-Heave Hummocks (D7)                         |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)          |  |
| <input type="checkbox"/> Salt Crust (B11)                                 |  |
| <input type="checkbox"/> Aquatic Invertebrates (B13)                      |  |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                       |  |
| <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)    |  |
| <input type="checkbox"/> Presence of Reduced Iron (C4)                    |  |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)       |  |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)          |  |
| <input type="checkbox"/> Other (Explain in Remarks)                       |  |

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes  No \_\_\_\_\_ Depth (inches): upper 3"  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  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: Scamahorn East City/County: Leavenworth Sampling Date: 7-16-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-13  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): <1  
 Subregion (LRR): A Lat: 47.601223 Long: -120.662146 Datum: WGS84  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Remarks: <u>Drier than normal for this time of year.</u>			

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>
_____ = Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				OBL species _____ x 1 = _____
1. _____	_____	_____	_____	FACW species _____ x 2 = _____
2. _____	_____	_____	_____	FAC species _____ x 3 = _____
3. _____	_____	_____	_____	FACU species _____ x 4 = _____
4. _____	_____	_____	_____	UPL species _____ x 5 = _____
5. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
_____ = Total Cover				Prevalence Index = B/A = _____
<b>Herb Stratum</b> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>
1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>	<u>X</u> 1 - Rapid Test for Hydrophytic Vegetation
2. _____	_____	_____	_____	2 - Dominance Test is >50%
3. _____	_____	_____	_____	3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____	_____	_____	_____	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	5 - Wetland Non-Vascular Plants <sup>1</sup>
6. _____	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	_____ = Total Cover
11. _____	_____	_____	_____	
<b>Woody Vine Stratum</b> (Plot size: _____)				_____ = Total Cover
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>% Bare Ground in Herb Stratum</b> _____				

Remarks:



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

Project/Site: Scamahorn East City/County: Leavenworth Sampling Date: 7-16-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-14  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope (%): <1  
 Subregion (LRR): A Lat: 47.60285 Long: -120.661658 Datum: WGS84  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Remarks: <u>Drier than normal for this time of year.</u>			

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
= Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
= Total Cover				
<b>Herb Stratum (Plot size: _____)</b>				
1. <u>potentilla recta</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	
2. <u>Phalaris arundinacea</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3. <u>Phleum pratense</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	
4. <u>Cirsium arvense</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
5. <u>Thlaspi arvense</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
<b>% Bare Ground in Herb Stratum _____</b>				
Remarks: <u>grazed</u>				
Hydrophytic Vegetation Present? Yes <u>X</u> No _____				

**SOIL**

Sampling Point: SP-14

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	2.5Y 2.5/1	100	-				silt loam	
10-18	2.5Y 2.5/1	90	7.5YR 4/4	10	C	M, PL	silt loam	
18-27	2.5Y 2.5/1	100	-				silt loam	

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

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

<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Depleted Dark Surface (F7)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**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:

~3 ft south of drainage ditch w/ surface water.

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

Project/Site: Scamahorn East City/County: Leavenworth Sampling Date: 7-16-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-15  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave Slope (%): <1  
 Subregion (LRR): A Lat: 47.601304 Long: -120.661653 Datum: WGS84  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Drier than normal for this time of year.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: _____)				
1. <u>Phleum pratense</u>	<u>70</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Cirsium arvense</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Lactuca scariola</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: _____				

**Hydrophytic Vegetation Indicators:**  
 \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation  
X 2 - Dominance Test is >50%  
 \_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_ 5 - Wetland Non-Vascular Plants<sup>1</sup>  
 \_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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

**SOIL**

Sampling Point: Sp-15

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	2.5Y 2.5/1	100	-				Sandy loam	
8-20	2.5Y 2.5/1	85	7.5YR 4/4	15			Sandy loam	

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                         | <input type="checkbox"/> 2 cm Muck (A10)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                     | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Very Shallow Dark Surface (TF12)   |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 | <input type="checkbox"/> Other (Explain in Remarks)   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                     |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input checked="" type="checkbox"/> Redox Dark Surface (F6)       | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)               |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                   |   |

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)   | <input type="checkbox"/> Drainage Patterns (B10)                           |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                              | <input type="checkbox"/> Dry-Season Water Table (C2)                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                               | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)         |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)            | <input type="checkbox"/> Geomorphic Position (D2)                          |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                            | <input type="checkbox"/> Shallow Aquitard (D3)                             |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)               | <input type="checkbox"/> FAC-Neutral Test (D5)                             |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)                  | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)                               | <input type="checkbox"/> Frost-Heave Hummocks (D7)                         |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |   |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |   |  |

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

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

Remarks:

pit filled from surface water.

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

Project/Site: Scamahorn East City/County: Leavenworth Sampling Date: 7-16-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-16  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope (%): <1  
 Subregion (LRR): A Lat: 47.601325 Long: -120.661650 Datum: NAD83  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Drier than normal for this time of year.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
= Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. <u>Cornus arifolia</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Prunus emarginata</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>75</u> = Total Cover				
<b>Herb Stratum (Plot size: _____)</b>				
1. <u>Phalaris arundinacea</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Cirsium arvense</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Urtica dioica</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
4. <u>Phleum pratense</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
<b>% Bare Ground in Herb Stratum _____</b>				
Remarks: _____				

**SOIL**

Sampling Point: SP-16

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	2.5Y	2.5/1	100	-			silt loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<b>Primary Indicators (minimum of one required; check all that apply)</b>	<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	
<input type="checkbox"/> Other (Explain in Remarks)	

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_ (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

upslope from ditch

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

Project/Site: Scamahorn East City/County: Leavenworth Sampling Date: 7-16-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-17  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave Slope (%): <1  
 Subregion (LRR): A Lat: 47.601192 Long: -120.660964 Datum: WGS84  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Drier than normal for this time of year. In former ditch channel.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>
_____ = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				OBL species _____ x 1 = _____
1. _____	_____	_____	_____	FACW species _____ x 2 = _____
2. _____	_____	_____	_____	FAC species _____ x 3 = _____
3. _____	_____	_____	_____	FACU species _____ x 4 = _____
4. _____	_____	_____	_____	UPL species _____ x 5 = _____
5. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
_____ = Total Cover				Prevalence Index = B/A = _____
<b>Herb Stratum (Plot size: _____)</b>				<b>Hydrophytic Vegetation Indicators:</b>
1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>	___ 1 - Rapid Test for Hydrophytic Vegetation
2. _____	_____	_____	_____	<u>X</u> 2 - Dominance Test is >50%
3. _____	_____	_____	_____	___ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____	_____	_____	_____	___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	___ 5 - Wetland Non-Vascular Plants <sup>1</sup>
6. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	_____ = Total Cover
11. _____	_____	_____	_____	
<b>Woody Vine Stratum (Plot size: _____)</b>				_____ = Total Cover
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>% Bare Ground in Herb Stratum _____</b>				
Remarks:				

**SOIL**

Sampling Point: SP-17

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	5Y 2.5/1	95	7.5YR 4/4	5	C	M, PL	silt loam	
2-29	5Y 2.5/1	100	-				silt loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input checked="" type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks: Qualifies as F8, but pit is located in abandoned ditch.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	<b>Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/></b>
Water Table Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	

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: Scamahorn East City/County: Leavenworth Sampling Date: 7-16-15  
 Applicant/Owner: Cascade School District State: WA Sampling Point: SP-18  
 Investigator(s): J. Dirkse, Grette Assoc. Section, Township, Range: 1, 24, 17  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 21  
 Subregion (LRR): A Lat: 47.601272 Long: -120.659741 Datum: NAD83  
 Soil Map Unit Name: Peoh Silt Loam NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Drier than normal for this time of year. In abandoned channel.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>50</u> x 2 = <u>100</u> FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species <u>20</u> x 5 = <u>100</u> Column Totals: <u>70</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.85</u>
_____ = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <small><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</small>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
<b>Herb Stratum (Plot size: _____)</b>				
1. <u>Phalaris arundinacea</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Potentilla recta</u>	<u>20</u>	<u>Y</u>	<u>NL(UPL)</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: _____				

**SOIL**

Sampling Point: **SP-18**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	2.5Y 2.5/1	90	7.5YR 4/4	10	C	M, PL	silt loam	
5-19	2.5Y 2.5/1	100	-				silt loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>  <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks: Dry to 19" BGS

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

Project/Site: Scamahorn City/County: Leavenworth/Chelan Sampling Date: 5-30-14  
 Applicant/Owner: \_\_\_\_\_ State: \_\_\_\_\_ Sampling Point: SP 3  
 Investigator(s): Ryan Walker; Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): A Lat: 47.601150° Long: -120.661543° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peon Silty Loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No _____
Remarks:	

### VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)	
1. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
2. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3%</u> (A/B)	
3. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>	
4. _____	_____	_____	_____		Total % Cover of: _____ Multiply by: _____
_____ = Total Cover					OBL species _____ x 1 = _____
<b>Sapling/Shrub Stratum</b> (Plot size: _____)					FACW species <u>20</u> x 2 = <u>40</u>
1. _____	_____	_____	_____		FAC species <u>10</u> x 3 = <u>30</u>
2. _____	_____	_____	_____	FACU species <u>30</u> x 4 = <u>120</u>	
3. _____	_____	_____	_____	UPL species <u>30</u> x 5 = <u>150</u>	
4. _____	_____	_____	_____	Column Totals: <u>90</u> (A) <u>340</u> (B)	
5. _____	_____	_____	_____	Prevalence Index = B/A = <u>3.7</u>	
_____ = Total Cover				<b>Hydrophytic Vegetation Indicators:</b>	
<b>Herb Stratum</b> (Plot size: _____)					
1. <u>Potentilla recta</u>	<u>30</u>	<u>Y</u>	<u>UPL (UPL)</u>		<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Taraxacum officinale</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>		<input type="checkbox"/> 2 - Dominance Test is >50%
3. <u>Phalaris arundinacea</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>		<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. <u>Elymus repens</u>	<u>10</u>	<u>N</u>	<u>FAC</u>		<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____		<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>
6. _____	_____	_____	_____		<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7. _____	_____	_____	_____		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____	_____	_____	_____		<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
_____ = Total Cover				<b>% Bare Ground in Herb Stratum</b> _____	
<b>Woody Vine Stratum</b> (Plot size: _____)					
1. _____	_____	_____	_____	Remarks:	
2. _____	_____	_____	_____		
_____ = Total Cover					

**SOIL**

Sampling Point: SP3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-42	2.5Y 2.5/1	100	-	-			clay loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	
<input type="checkbox"/> Other (Explain in Remarks)	

**Field Observations:**

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	

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

Remarks: Pit was dug ~5' from flowing ditch/stream feature. Pit extended vertically below the level of the water.

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

Project/Site: Scammon City/County: Leavenworth/Chelan Sampling Date: 5-30-14  
 Applicant/Owner: \_\_\_\_\_ State: WA Sampling Point: SP-4  
 Investigator(s): Ryan Walker, Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): A Lat: 47.601072° Long: -120.659129° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peon silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																					
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)																					
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)																					
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3%</u> (A/B)																					
4. _____	_____	_____	_____	Prevalence Index worksheet:																					
_____ = Total Cover					<table style="width:100%; border-collapse: collapse;"> <tr> <td colspan="2">Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>OBL species</td> <td>_____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species</td> <td>_____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species</td> <td><u>50</u></td> <td>x 3 = <u>150</u></td> </tr> <tr> <td>FACU species</td> <td><u>30</u></td> <td>x 4 = <u>120</u></td> </tr> <tr> <td>UPL species</td> <td><u>20</u></td> <td>x 5 = <u>100</u></td> </tr> <tr> <td>Column Totals:</td> <td><u>100</u> (A)</td> <td><u>370</u> (B)</td> </tr> </table>	Total % Cover of:		Multiply by:	OBL species	_____	x 1 = _____	FACW species	_____	x 2 = _____	FAC species	<u>50</u>	x 3 = <u>150</u>	FACU species	<u>30</u>	x 4 = <u>120</u>	UPL species	<u>20</u>	x 5 = <u>100</u>	Column Totals:	<u>100</u> (A)
Total % Cover of:		Multiply by:																							
OBL species	_____	x 1 = _____																							
FACW species	_____	x 2 = _____																							
FAC species	<u>50</u>	x 3 = <u>150</u>																							
FACU species	<u>30</u>	x 4 = <u>120</u>																							
UPL species	<u>20</u>	x 5 = <u>100</u>																							
Column Totals:	<u>100</u> (A)	<u>370</u> (B)																							
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index = B/A = <u>3.7</u>																					
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																					
2. _____	_____	_____	_____																						
3. _____	_____	_____	_____																						
4. _____	_____	_____	_____																						
5. _____	_____	_____	_____																						
6. _____	_____	_____	_____																						
7. _____	_____	_____	_____																						
8. _____	_____	_____	_____																						
9. _____	_____	_____	_____																						
10. _____	_____	_____	_____																						
11. _____	_____	_____	_____																						
_____ = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>																					
Herb Stratum (Plot size: _____)																									
1. <u>Elymus repens</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>																						
2. <u>Portulilla recta</u>	<u>20</u>	<u>Y</u>	<u>NE (UPL)</u>																						
3. <u>Cichorium intybus</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>																						
4. <u>Taraxacum officinale</u>	<u>10</u>	<u>N</u>	<u>FACU</u>																						
5. _____	_____	_____	_____																						
6. _____	_____	_____	_____																						
7. _____	_____	_____	_____																						
8. _____	_____	_____	_____																						
9. _____	_____	_____	_____																						
10. _____	_____	_____	_____																						
11. _____	_____	_____	_____																						
_____ = Total Cover																									
Woody Vine Stratum (Plot size: _____)																									
1. _____	_____	_____	_____																						
2. _____	_____	_____	_____																						
_____ = Total Cover																									
% Bare Ground in Herb Stratum _____																									
Remarks:																									

**SOIL**

Sampling Point: SP-4

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-24	2.5Y 4/2	70	10YR 3/6	30	C	M		Sandy clay loam

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>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

Remarks: Redox features are present without current groundwater. They are likely relic features due to past flood irrigation by the owner, in which the ditch was dammed for short periods of time, then the dam removed and the site drained.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)   | <input type="checkbox"/> Drainage Patterns (B10)                           |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                              | <input type="checkbox"/> Dry-Season Water Table (C2)                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                               | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)         |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)            | <input type="checkbox"/> Geomorphic Position (D2)                          |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                            | <input type="checkbox"/> Shallow Aquitard (D3)                             |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)               | <input type="checkbox"/> FAC-Neutral Test (D5)                             |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)                  | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)                               | <input type="checkbox"/> Frost-Heave Hummocks (D7)                         |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |   |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |   |  |

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 20  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 10

Wetland Hydrology Present? Yes  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: Scamahorn City/County: Leavenworth/Chelan Sampling Date: 5-30-14  
 Applicant/Owner: \_\_\_\_\_ State: WA Sampling Point: SP-5  
 Investigator(s): Ryan Walker; Gnette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): A Lat: 47.601226° Long: -120.658917° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peak Silt loam NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 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 <u>X</u>	Hydic Soil Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Wetland Hydrology Present? Yes _____ No <u>X</u>		
Remarks: <u>see notes on wetland hydrology</u>		

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	= Total Cover
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species <u>55</u> x 3 = <u>165</u>
5. _____	_____	_____	_____	FACU species <u>25</u> x 4 = <u>100</u>
_____ = Total Cover				UPL species <u>20</u> x 5 = <u>180</u>
_____ = Total Cover				Column Totals: <u>100</u> (A) <u>365</u> (B)
Herb Stratum (Plot size: _____)				Prevalence Index = B/A = <u>3.65</u>
1. <u>Phleum pratense</u>	<u>25</u>		<u>FAC</u>	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Agrostis gigantea</u>	<u>30</u>		<u>FAC</u>	
3. <u>Thlaspi arvense</u>	<u>20</u>		<u>UPL</u>	
4. <u>Taraxacum officinale</u>	<u>20</u>		<u>FACU</u>	
5. <u>Matricaria discoides</u>	<u>5</u>		<u>FACU</u>	
6. _____	_____		_____	
7. _____	_____		_____	
8. _____	_____		_____	
9. _____	_____		_____	
10. _____	_____		_____	
11. _____	_____		_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
Woody Vine Stratum (Plot size: _____)				
1. _____	_____		_____	
2. _____	_____		_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

**SOIL**

Sampling Point: SP5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14"	2.5Y 3/1	85	10YR 4/6	15	C	PL, M	sandy clay loam	
14-18"	2.5Y 3/1	100	—	—			coarse sandy clay loam	

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)   | <input type="checkbox"/> Drainage Patterns (B10)                           |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                              | <input type="checkbox"/> Dry-Season Water Table (C2)                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                               | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)         |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)            | <input type="checkbox"/> Geomorphic Position (D2)                          |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                            | <input type="checkbox"/> Shallow Aquitard (D3)                             |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)               | <input type="checkbox"/> FAC-Neutral Test (D5)                             |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)                  | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)                               | <input type="checkbox"/> Frost-Heave Hummocks (D7)                         |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |   |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |   |  |

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (inches): 0"  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

Remarks: upper 3" is saturated, below this is not. Test pit filled with water from pit wall, 3" below surface. Hydrology is not representative of high water table. surface water is due to breach in nearby ditch, which likely occurred in the past 6 months. Saturation only present below 3" where coarse sand allowed infiltration.

# REGION 4

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

Project Site: Region 4 City/County: Leavenworth/Chelan Sampling Date: 4/22/15  
 Applicant/Owner: Glaeser State: WA Sampling Point: SP 4.1  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): \_\_  
 Subregion (LRR): A Lat: 47.605003° Long: -120.660643° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Remarks: <b>Precipitation below average</b>					

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>50</u></td> <td>x3 = <u>150</u></td> </tr> <tr> <td>FACU species <u>5</u></td> <td>x4 = <u>20</u></td> </tr> <tr> <td>UPL species <u>20</u></td> <td>x5 = <u>100</u></td> </tr> <tr> <td>Column Totals: <u>80</u> (A)</td> <td><u>280</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.5</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species <u>5</u>	x2 = <u>10</u>	FAC species <u>50</u>	x3 = <u>150</u>	FACU species <u>5</u>	x4 = <u>20</u>	UPL species <u>20</u>	x5 = <u>100</u>	Column Totals: <u>80</u> (A)	<u>280</u> (B)	Prevalence Index = B/A = <u>3.5</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species <u>5</u>	x2 = <u>10</u>																			
FAC species <u>50</u>	x3 = <u>150</u>																			
FACU species <u>5</u>	x4 = <u>20</u>																			
UPL species <u>20</u>	x5 = <u>100</u>																			
Column Totals: <u>80</u> (A)	<u>280</u> (B)																			
Prevalence Index = B/A = <u>3.5</u>																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. <u>Symphoricarpos albus</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>20</u>	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Elymus repens</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Medicago sativa</u>	<u>20</u>	<u>yes</u>	<u>UPL</u>																	
3. <u>Phalaris arundinacea</u>	<u>5</u>	<u>no</u>	<u>FACW</u>																	
4. <u>Taraxacum officinale</u>	<u>5</u>	<u>no</u>	<u>FACU</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>80</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum <u>0</u>																				
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes <input type="checkbox"/></td> <td style="width: 10%;">No <input checked="" type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>																		
Remarks: *																				

**SOIL**

Sampling Point: SP 4.1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-20</u>	<u>2.5Y 3/1</u>	<u>100</u>	_____	_____	_____	_____	<u>gravelly loam</u>	_____
<u>20-26</u>	<u>5Y 2.5/1</u>	<u>100</u>	_____	_____	_____	_____	<u>silt loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b>			
Type: _____			
Depth (inches): _____			
Remarks:		<b>Hydric Soils Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

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

Remarks:      very dry to 28" BGS

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

Project Site: Region 4 City/County: Leavenworth/Chelan Sampling Date: 4/22/15  
 Applicant/Owner: Glaeser State: WA Sampling Point: SP 4.2  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): \_\_  
 Subregion (LRR): A Lat: 47.604996° Long: -120.660052° Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <b>Precipitation is below average</b>			

**VEGETATION – Use scientific names of plants**

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: <u>_____</u> Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% = _____, 20% = _____	_____	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
% Bare Ground in Herb Stratum _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: \_\_\_\_\_

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-11	2.5Y 2.5/1	100					silt loam	
11-30	2.5Y 2.5/1	90	10YR 4/4	10	c	m, pl	silt loam	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks: no alpha-alpha dipyridyl reaction

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes  No

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

Remarks: no alpha-alpha dipyridyl reaction

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

Project Site: Region 4 City/County: Leavenworth/Chelan Sampling Date: 4/22/15  
 Applicant/Owner: Baker State: WA Sampling Point: SP 4.3  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1  
 Subregion (LRR): A Lat: 47.605225° Long: -120.658509° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Precipitation below average</b>					

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
Sapling/Shrub Stratum (Plot size: _____)				<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
Herb Stratum (Plot size: _____)				Column Totals: _____ (A)	_____ (B)
1. <i>Phalaris arundinacea</i>	<u>20</u>	<u>yes</u>	<u>FACW</u>	Prevalence Index = B/A = _____	
2. <i>Lupinus polyphyllus</i>	<u>30</u>	<u>yes</u>	<u>FAC</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	<u>50</u>	= Total Cover			
Woody Vine Stratum (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>	
1. _____	_____	_____	_____	<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
2. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____				<b>Hydrophytic Vegetation Present?</b>	
				Yes	<input checked="" type="checkbox"/>
				No	<input type="checkbox"/>
Remarks: *					

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-11	10YR 3/1	100					silt loam	
11-16	10YR 3/1	95	10YR 3/6	5			silt loam	
16-24	5Y 3/1	90	10YR 4/6	10			silt loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)				
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soils Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present?      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>23</u> Saturation Present?        Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>20</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:    No alpha-alpha dipyrindyl reaction; at the beginning of dry season, BPJ water level too low to be considered dry season water table

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

Project Site: Region 4 City/County: Leavenworth/Chelan Sampling Date: 4/22/15  
 Applicant/Owner: Baker State: WA Sampling Point: SP 4.4  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Ditch/depression Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): A Lat: 47.605203° Long: -120.658424° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: <b>Precipitation below average</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">1 (A)</span>  Total Number of Dominant Species Across All Strata: <span style="float: right;">1 (B)</span>  Percent of Dominant Species That Are OBL, FACW, or FAC: <span style="float: right;">100 (A/B)</span>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <i>Phalaris arundinacea</i>	100	yes	FACW																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	100	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes</td> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 10%;">No</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>												
<b>Hydrophytic Vegetation Present?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>																
Remarks: *																				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	5Y 3/1	100					silt loam	
7-11	5Y 3/1	90	10YR 3/6	10			silt loam	
11-20	5Y 4/1	90	10YR 3/6	10			silt loam	

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): 10  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 7

**Wetland Hydrology Present?** Yes  No

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

Remarks: Positive alpha-alpha dip reaction only in one dime-sized location ~8.5" BGS; very faint reaction 0-12" after about 2 mins.

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

Project Site: Region 4 City/County: Leavenworth/Chelan Sampling Date: 4/22/15  
 Applicant/Owner: Baker State: WA Sampling Point: SP 4.5  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): A Lat: 47.605016° Long: -120.659087° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Precipitation below average</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	1 (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	1 (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	100 (A/B)
4. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____	<u>Total % Cover of:</u>	<u>Multiply by:</u>
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
50% = _____, 20% = _____	_____	= Total Cover		UPL species _____	x5 = _____
<b>Herb Stratum (Plot size: _____)</b>				Column Totals: _____ (A)	_____ (B)
1. <i>Phalaris arundinacea</i>	100	yes	FACW	Prevalence Index = B/A = _____	
2. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = _____, 20% = _____	100	= Total Cover			
<b>Woody Vine Stratum (Plot size: _____)</b>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
50% = _____, 20% = _____	_____	= Total Cover			
% Bare Ground in Herb Stratum _____					
Remarks: *					

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	5Y 2.5/1	100	_____	_____	_____	_____	silt loam	_____
8-20	5Y 3/1	100	_____	_____	_____	_____	silt loam	_____
20-26	5Y 3/1	90	10YR 3/6	10	c	m	silt loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses 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  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes  No

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

Remarks: no alpha-alpha dipyrldyl reaction

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

Project Site: Region 4 City/County: Leavenworth/Chelan Sampling Date: 5/13/15  
 Applicant/Owner: Lorenz State: WA Sampling Point: SP 4.6  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.605443° Long: -120.658426° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Precipitation is below average</b>					

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species <u>60</u></td> <td>x2 = <u>120</u></td> </tr> <tr> <td>FAC species <u>10</u></td> <td>x3 = <u>30</u></td> </tr> <tr> <td>FACU species <u>30</u></td> <td>x4 = <u>120</u></td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>270</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.7</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species <u>60</u>	x2 = <u>120</u>	FAC species <u>10</u>	x3 = <u>30</u>	FACU species <u>30</u>	x4 = <u>120</u>	UPL species _____	x5 = _____	Column Totals: <u>100</u> (A)	<u>270</u> (B)	Prevalence Index = B/A = <u>2.7</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species <u>60</u>	x2 = <u>120</u>																			
FAC species <u>10</u>	x3 = <u>30</u>																			
FACU species <u>30</u>	x4 = <u>120</u>																			
UPL species _____	x5 = _____																			
Column Totals: <u>100</u> (A)	<u>270</u> (B)																			
Prevalence Index = B/A = <u>2.7</u>																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Phalaris arundinacea</u>	<u>60</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>Taraxacum officinale</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>																	
3. <u>Capsella bursa-pastoris</u>	<u>10</u>	<u>no</u>	<u>FACU</u>																	
4. <u>Cirsium arvense</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;">No</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> <td></td> <td></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	No					<input checked="" type="checkbox"/>	<input type="checkbox"/>								
<b>Hydrophytic Vegetation Present?</b>	Yes	No																		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>																		
Remarks: *																				

**SOIL**

Sampling Point: SP 4.6

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-16</u>	<u>10YR 3/1</u>	<u>100</u>					<u>silt loam</u>	
<u>16-20</u>	<u>2.5Y 4/1</u>	<u>80</u>	<u>10YR 4/6</u>	<u>20</u>	<u>c</u>	<u>m</u>	<u>sandy loam</u>	
<u>20-24</u>	<u>2.5Y 4/1</u>	<u>80</u>	<u>10YR 4/6</u>	<u>20</u>	<u>c</u>	<u>m</u>	<u>coarse sandy loam</u>	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input checked="" type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soils Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1, 2, 4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b> <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <b>(MLRA 1, 2, 4A, and 4B)</b> <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b> <input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b>	<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present?        Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation Present? (includes capillary fringe)    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	

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

Remarks:    soil very dry to bottom of pit

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

Project Site: Region 4 City/County: Leavenworth/Chelan Sampling Date: 5/13/15  
 Applicant/Owner: Lorenz State: WA Sampling Point: SP 4.7  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): \_\_  
 Subregion (LRR): A Lat: 47.605780° Long: -120.658235° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Precipitation is below average</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Phleum pratense</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Equisetum arvense</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Taraxacum officinale</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>																	
4. <u>Trifolium pratense</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
5. <u>Poa pratensis</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes <input checked="" type="checkbox"/></td> <td style="width: 10%;">No <input type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		

Remarks: \*Mowed lawn area

**SOIL**

Sampling Point: SP 4.7

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-6</u>	<u>2.5Y 3/2</u>	<u>75</u>	<u>10YR 4/6</u>	<u>25</u>	<u>c</u>	<u>m</u>	<u>loam</u>	
<u>6-17</u>	<u>2.5Y 3/1</u>	<u>75</u>	<u>10YR 4/6</u>	<u>25</u>	<u>c</u>	<u>m</u>	<u>silt loam</u>	
<u>17-19</u>	<u>10BG 6/1</u>	<u>65</u>	<u>10YR 4/6</u>	<u>35</u>	<u>c</u>	<u>m</u>	<u>silt/sandy loam</u>	
<u>19-24</u>	<u>2.5Y 3/1</u>	<u>100</u>					<u>silt/sand</u>	
_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	

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

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

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                       | <input type="checkbox"/> Sandy Redox (S5)                                |
| <input type="checkbox"/> Histic Epipedon (A2)                | <input type="checkbox"/> Stripped Matrix (S6)                            |
| <input type="checkbox"/> Black Histic (A3)                   | <input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b> |
| <input type="checkbox"/> Hydrogen Sulfide (A4)               | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                        |
| <input type="checkbox"/> Depleted Below Dark Surface (A11)   | <input type="checkbox"/> Depleted Matrix (F3)                            |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6)              |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)            | <input type="checkbox"/> Depleted Dark Surface (F7)                      |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)            | <input type="checkbox"/> Redox Depressions (F8)                          |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- |   |
|---|
| <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soils Present?                      Yes        No   

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

- |  |
|--|
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |
| <b>(MLRA 1, 2, 4A, and 4B)</b>                                     |
| <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input checked="" type="checkbox"/> Dry-Season Water Table (C2)    |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Geomorphic Position (D2)                  |
| <input type="checkbox"/> Shallow Aquitard (D3)                     |
| <input type="checkbox"/> FAC-Neutral Test (D5)                     |
| <input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>     |
| <input type="checkbox"/> Frost-Heave Hummocks (D7)                 |

**Field Observations:**

Surface Water Present?    Yes        No        Depth (inches): \_\_\_\_\_  
 Water Table Present?    Yes        No        Depth (inches): 23  
 Saturation Present?  
 (includes capillary fringe)    Yes        No        Depth (inches): 20

Wetland Hydrology Present?                      Yes        No   

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

Remarks:

# REGION 11

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

Project Site: Region 11 City/County: Leavenworth/Chelan Sampling Date: 5/13/15  
 Applicant/Owner: Muscutt State: WA Sampling Point: SP 11.1  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S1  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.606050° Long: -120.659481° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peoh silt loam NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Precipitation is below average</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species <u>60</u></td> <td>x3 = <u>180</u></td> </tr> <tr> <td>FACU species <u>40</u></td> <td>x4 = <u>160</u></td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>340</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.4</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species <u>60</u>	x3 = <u>180</u>	FACU species <u>40</u>	x4 = <u>160</u>	UPL species _____	x5 = _____	Column Totals: <u>100</u> (A)	<u>340</u> (B)	Prevalence Index = B/A = <u>3.4</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species <u>60</u>	x3 = <u>180</u>																			
FACU species <u>40</u>	x4 = <u>160</u>																			
UPL species _____	x5 = _____																			
Column Totals: <u>100</u> (A)	<u>340</u> (B)																			
Prevalence Index = B/A = <u>3.4</u>																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Poa pratensis</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Capsella bursa-pastoris</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>																	
3. <u>Agrostis gigantea</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
4. <u>Taraxacum officinale</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>																	
5. <u>Bromus ciliatus</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum _____																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes <input type="checkbox"/></td> <td style="width: 10%;">No <input checked="" type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>																		
Remarks: *																				

**SOIL**

Sampling Point: SP 11.1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-2</u>	<u>10YR 3/1</u>	<u>100</u>	_____	_____	_____	_____	<u>loam</u>	_____
<u>2-18</u>	<u>2.5Y 3/1</u>	<u>100</u>	_____	_____	_____	_____	<u>silt loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soils Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1, 2, 4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b> <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <b>(MLRA 1, 2, 4A, and 4B)</b> <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b> <input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b>	<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present?        Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation Present? (includes capillary fringe)    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	

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

Remarks:

REGION 12

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

Project Site: Region 12 City/County: Leavenworth/Chelan Sampling Date: 5/13/15  
 Applicant/Owner: Olson State: WA Sampling Point: SP 12.1  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 47.594226° Long: -120.677364° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peshastin stony loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Precipitation is below average</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>Populus tremuloides</u>	<u>65</u>	<u>yes</u>	<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)																
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)																
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)																
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species <u>30</u></td> <td>x3 = <u>90</u></td> </tr> <tr> <td>FACU species <u>145</u></td> <td>x4 = <u>580</u></td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: <u>175</u> (A)</td> <td><u>670</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.8</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species <u>30</u>	x3 = <u>90</u>	FACU species <u>145</u>	x4 = <u>580</u>	UPL species _____	x5 = _____	Column Totals: <u>175</u> (A)	<u>670</u> (B)	Prevalence Index = B/A = <u>3.8</u>	
Total % Cover of:	Multiply by:																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species <u>30</u>	x3 = <u>90</u>																			
FACU species <u>145</u>	x4 = <u>580</u>																			
UPL species _____	x5 = _____																			
Column Totals: <u>175</u> (A)	<u>670</u> (B)																			
Prevalence Index = B/A = <u>3.8</u>																				
50% = _____, 20% = _____	_____	= Total Cover	_____																	
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. <u>Symphoricarpos albus</u>	<u>60</u>	<u>yes</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Crataegus douglasii</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Amelanchier alnifolia</u>	<u>10</u>	<u>no</u>	<u>FACU</u>																	
4. <u>Rosa nutkana</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
5. <u>Populus tremuloides</u>	<u>10</u>	<u>no</u>	<u>FACU</u>																	
50% = _____, 20% = _____	<u>110</u>	= Total Cover	_____																	
<u>Herb Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>100</u>	= Total Cover	_____																	
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover	_____																	
% Bare Ground in Herb Stratum _____																				
* <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes <input type="checkbox"/></td> <td style="width: 10%;">No <input checked="" type="checkbox"/></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>														
<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>																		

Remarks:

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-16</u>	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	<u>loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soils Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1, 2, 4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b> <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <b>(MLRA 1, 2, 4A, and 4B)</b> <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b> <input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b>	<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present?      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation Present? (includes capillary fringe)    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	

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: Region 12 City/County: Leavenworth/Chelan Sampling Date: 5/13/15  
 Applicant/Owner: Olson State: WA Sampling Point: SP 12.2  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 3  
 Subregion (LRR): A Lat: 47.594548° Long: -120.678091° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peshastin stony loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: <b>Precipitation is below average</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.3</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = <u>2.3</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = <u>2.3</u>																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. <u>Salix hookeriana</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>30</u>	= Total Cover																		
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u>Phalaris arundinacea</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>Urtica dioica</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>40</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum <u>60</u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;">No</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> <td></td> <td></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes	No					<input checked="" type="checkbox"/>	<input type="checkbox"/>								
<b>Hydrophytic Vegetation Present?</b>	Yes	No																		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>																		

Remarks: \_\_\_\_\_

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-26</u>	<u>2.5Y 2.5/1</u>	<u>100</u>	_____	_____	_____	_____	<u>grav. loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input checked="" type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b>	<b>Hydric Soils Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____ Depth (inches): _____	

Remarks: Soils have a significant gravel component, and would seem to have developed redox features if saturated for long enough. However, it is possible this soil does not readily produce redox features, as has been observed in the vicinity. Further, there is a previously delineated wetland downslope of this point. Thus it is assumed to be saturated >14 days and is determined to be a problematic soil.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

<b>Field Observations:</b>	<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present?      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present?      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>25</u>	
Saturation Present? (includes capillary fringe)      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>22</u>	

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: Region 12 City/County: Leavenworth/Chelan Sampling Date: 5/13/15  
 Applicant/Owner: Olson State: WA Sampling Point: SP 12.3  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 3  
 Subregion (LRR): A Lat: 47.594312° Long: -120.677350° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Peshastin stony loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <b>Precipitation is below average</b>			

### VEGETATION – Use scientific names of plants

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Populus trichocarpa</u>	<u>80</u>	<u>yes</u>	<u>FAC</u>	<b>Dominance Test Worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	<u>80</u>	= Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum <u>100</u>																				
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks: *																				

**SOIL**

Sampling Point: SP 12.3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-16</u>	<u>2.5Y 2.5/1</u>	<u>100</u>	_____	_____	_____	_____	<u>sandy stony loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soils Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	--

Remarks:

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1, 2, 4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b> <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9) <b>(MLRA 1, 2, 4A, and 4B)</b> <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b> <input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b>	<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present?      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation Present? (includes capillary fringe)    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	

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

Remarks: Pit is in a depression (10' wide, 3' deep), obviously manmade.

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

Project Site: Region 12 City/County: Leavenworth/Chelan Sampling Date: 5/13/15  
 Applicant/Owner: Marson State: WA Sampling Point: SP 12.4  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): \_\_\_\_\_  
 Subregion (LRR): A Lat: 47.592016° Long: -120.677517° Datum: \_\_\_\_\_  
 Soil Map Unit Name: Thow gravelly fine sandy loam, 25 to 45 percent slopes NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: <b>Precipitation is below average</b>					

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
<b>Herb Stratum (Plot size: _____)</b>																				
1. <u><i>Epilobium ciliatum</i></u>	<u>30</u>	<u>yes</u>	<u>FACW</u>																	
2. <u><i>Phalaris arundinacea</i></u>	<u>10</u>	<u>yes</u>	<u>FACW</u>																	
3. <u><i>Carex spp.*</i></u>	<u>10</u>	<u>yes</u>	<u>FACW</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum <u>100</u>																				

Remarks: \*Unidentified; assumed FACW

**SOIL**

Sampling Point: SP 12.4

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-8</u>	<u>2.5Y 4/1</u>	<u>100</u>	---	---	---	---	<u>Sand</u>	---
<u>8-9</u>	<u>N 4/1</u>	<u>100</u>	---	---	---	---	<u>Sand</u>	---
<u>9+</u>	<u>=</u>	---	---	---	---	---	<u>Coarse gravel</u>	<u>No color</u>
---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: Roadbed?

Depth (inches): 9" BGS

**Hydric Soils Present?**

Yes  No

Remarks: Does not qualify as S4 (Sandy Gleyed) due to gleyed layer starting below 6" BGS. Sandy soil does not have the same problems developing redox features as the silt loam found elsewhere in the vicinity.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>	<b>(MLRA 1, 2, 4A, and 4B)</b>
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): -4

Water Table Present? Yes  No  Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 0

**Wetland Hydrology Present?** Yes  No

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

Remarks: Pit is in a depression on what appears to be an old roadbed, with compacted soil below. Water likely ponded surface runoff, or possibly from some domestic discharge--sewage smell noticeable.

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

Project Site: Region 12 City/County: Leavenworth/Chelan Sampling Date: 5/13/15  
 Applicant/Owner: Marson State: WA Sampling Point: SP 12.5  
 Investigator(s): J. Dirkse: Grette Associates Section, Township, Range: T24 R17 S2  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none):      Slope (%): 1  
 Subregion (LRR): A Lat: 47.591492° Long: -120.675844° Datum:       
 Soil Map Unit Name: Thow gravelly fine sandy loam, 25 to 45 percent slopes NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: <b>Precipitation is below average</b>					

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u><i>Populus balsamifera spp. trichocarpa</i></u>	<u>60</u>	<u>yes</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	<u>    </u>	= Total Cover																	
Sapling/Shrub Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:																
1. <u><i>Cornus sericea</i></u>	<u>60</u>	<u>yes</u>	<u>FACW</u>	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>    </u></td> <td>x1 = <u>    </u></td> </tr> <tr> <td>FACW species <u>    </u></td> <td>x2 = <u>    </u></td> </tr> <tr> <td>FAC species <u>    </u></td> <td>x3 = <u>    </u></td> </tr> <tr> <td>FACU species <u>    </u></td> <td>x4 = <u>    </u></td> </tr> <tr> <td>UPL species <u>    </u></td> <td>x5 = <u>    </u></td> </tr> <tr> <td>Column Totals: <u>    </u> (A)</td> <td><u>    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>    </u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species <u>    </u>	x1 = <u>    </u>	FACW species <u>    </u>	x2 = <u>    </u>	FAC species <u>    </u>	x3 = <u>    </u>	FACU species <u>    </u>	x4 = <u>    </u>	UPL species <u>    </u>	x5 = <u>    </u>	Column Totals: <u>    </u> (A)	<u>    </u> (B)	Prevalence Index = B/A = <u>    </u>	
Total % Cover of:	Multiply by:																			
OBL species <u>    </u>	x1 = <u>    </u>																			
FACW species <u>    </u>	x2 = <u>    </u>																			
FAC species <u>    </u>	x3 = <u>    </u>																			
FACU species <u>    </u>	x4 = <u>    </u>																			
UPL species <u>    </u>	x5 = <u>    </u>																			
Column Totals: <u>    </u> (A)	<u>    </u> (B)																			
Prevalence Index = B/A = <u>    </u>																				
2. <u><i>Populus balsamifera spp. trichocarpa</i></u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	<u>    </u>	= Total Cover																	
Herb Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:																
1. <u><i>Osmorhiza chilensis</i></u>	<u>5</u>	<u>yes</u>	<u>FACU</u>	<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u><i>Streptopus lanceolatus</i></u>	<u>5</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
9. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
10. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
11. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	<u>    </u>	= Total Cover																	
Woody Vine Stratum (Plot size: <u>    </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>																	
50% = <u>    </u> , 20% = <u>    </u>	<u>    </u>	<u>    </u>	= Total Cover																	
% Bare Ground in Herb Stratum <u>100</u>																				
Remarks: *																				

**SOIL**

Sampling Point: SP 12.5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-20</u>	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	<u>Silt loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input checked="" type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b>	<b>Hydric Soils Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____ Depth (inches): _____	

Remarks:      Problematic soils: assumed saturated <14 consecutive days; silt loam that does not readily develop redox features.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<b>(except MLRA 1, 2, 4A, and 4B)</b>
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) <b>(LRR A)</b>
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)
	<b>(MLRA 1, 2, 4A, and 4B)</b>
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>
	<input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b>	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present?      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>Pond ~15' E</u>	
Water Table Present?      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>5</u>	
Saturation Present? (includes capillary fringe)      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>3</u>	

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

Remarks:      Pit is located approximately 15 ft from a pond, but very close to the elevation of the water surface.

# **LEAVENWORTH REGIONAL STORMWATER PLAN**



## **WETLAND DELINEATION REPORT**

### **ATTACHMENT 2: WETLAND RATING FORMS**

Wetland name or number 1A

## RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): Leavenworth: Region 1 Date of site visit: 6/10/15  
 Rated by J. Dirkse; Grette Associates Trained by Ecology?  Yes  No Date of training 9/05; 4/14  
 HGM Class used for rating Depressional Wetland has multiple HGM classes?  Y  N

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

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

### 1. Category of wetland based on FUNCTIONS

- Category I – Total score = 22-27
- Category II – Total score = 19-21
- Category III – Total score = 16-18
- Category IV – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	
Landscape Potential	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	
Value	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	<b>TOTAL</b>
<b>Score Based on Ratings</b>	<b>8</b>	<b>6</b>	<b>6</b>	<b>20</b>

**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
	<i>Circle the appropriate category</i>
Vernal Pools	II <input type="checkbox"/> III <input type="checkbox"/>
Alkali	I <input type="checkbox"/>
Wetland of High Conservation Value	I <input type="checkbox"/>
Bog and Calcareous Fens	I <input type="checkbox"/>
Old Growth or Mature Forest – slow growing	I <input type="checkbox"/>
Aspen Forest	I <input type="checkbox"/>
Old Growth or Mature Forest – fast growing	II <input type="checkbox"/>
Floodplain forest	II <input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>

Wetland name or number 1A

## Maps and figures required to answer questions correctly for Eastern Washington Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	1
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	1
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	1
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	1
Map of the contributing basin	D 5.3	6
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	7
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	13
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	D 3.3	14

## Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
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)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

## Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	L 3.3	

## Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	S 3.3	



Wetland name or number 1A

**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 wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

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

**DEPRESSIONAL WETLANDS**

Points  
(only 1  
score per  
box)

**Water Quality Functions** - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?			
D 1.1. Characteristics of surface water outflows from the wetland:			
Wetland has no surface water outlet	<input type="checkbox"/> points = 5		3
Wetland has an intermittently flowing outlet	<input checked="" type="checkbox"/> points = 3		
Wetland has a highly constricted permanently flowing outlet	<input type="checkbox"/> points = 3		
Wetland has a permanently flowing, unconstricted, surface outlet	<input type="checkbox"/> points = 1		
D 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic ( <i>use NRCS definitions of soils</i> )	<input type="checkbox"/> YES = 3 <input checked="" type="checkbox"/> NO = 0		0
D 1.3. <u>Characteristics of persistent vegetation</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes)			
Wetland has persistent, ungrazed, vegetation for > 2/3 of area	<input type="checkbox"/> points = 5		3
Wetland has persistent, ungrazed, vegetation from 1/3 to 2/3 of area	<input checked="" type="checkbox"/> points = 3		
Wetland has persistent, ungrazed vegetation from 1/10 to < 1/3 of area	<input type="checkbox"/> points = 1		
Wetland has persistent, ungrazed vegetation < 1/10 of area	<input type="checkbox"/> points = 0		
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.</i>			
Area seasonally ponded is > 1/2 total area of wetland	<input type="checkbox"/> points = 3		0
Area seasonally ponded is 1/4 - 1/2 total area of wetland	<input type="checkbox"/> points = 1		
Area seasonally ponded is < 1/4 total area of wetland	<input checked="" type="checkbox"/> points = 0		
Total for D 1	Add the points in the boxes above		6

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

D 2.0. Does the landscape have the potential to support the water quality function of the site?			
D 2.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0		1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0		1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0		1
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1- D 2.3? Source <u>Livestock</u>	Yes = 1 No = 0		1
Total for D 2	Add the points in the boxes above		4

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

D 3.0. Is the water quality improvement provided by the site valuable to society?			
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(d) list?	Yes = 1 No = 0		1
D 3.2. Is the wetland in a basin or sub-basin where water quality is an issue in some aquatic resource [303(d) list, eutrophic lakes, problems with nuisance and toxic algae]?	Yes = 1 No = 0		1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality ( <i>answer YES if there is a TMDL for the drainage or basin in which the wetland is found</i> )?	Yes = 2 No = 0		2
Total for D 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*

<b>DEPRESSIONAL WETLANDS</b>		Points (only 1 score per box)
<b>Hydrologic Functions</b> - Indicators that the site functions to reduce flooding and erosion.		
D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. <u>Characteristics of surface water outflows from the wetland:</u> Wetland has no surface water outlet <input type="checkbox"/> points = 8 Wetland has an intermittently flowing outlet <input checked="" type="checkbox"/> points = 4 Wetland has a highly constricted permanently flowing outlet <input type="checkbox"/> points = 4 Wetland has a permanently flowing unconfined surface outlet <input type="checkbox"/> points = 0 <i>(If outlet is a ditch and not permanently flowing treat wetland as "intermittently flowing")</i>		4
D 4.2. <u>Depth of storage during wet periods:</u> <i>Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or deepest part (if dry).</i> Seasonal ponding: > 3 ft above the lowest point in wetland or the surface of permanent ponding <input type="checkbox"/> points = 8 Seasonal ponding: 2 ft - < 3 ft above the lowest point in wetland or the surface of permanent pond <input type="checkbox"/> points = 6 The wetland is a headwater wetland <input type="checkbox"/> points = 4 Seasonal ponding: 1 ft - < 2 ft <input type="checkbox"/> points = 4 Seasonal ponding: 6 in - < 1 ft <input checked="" type="checkbox"/> points = 2 Seasonal ponding: < 6 in or wetland has only saturated soils <input type="checkbox"/> points = 0		2
Total for D 4		6
<b>Rating of Site Potential</b> If score is: <input type="checkbox"/> 12-16 = H <input checked="" type="checkbox"/> 6-11 = M <input type="checkbox"/> 0-5 = L <span style="float: right;"><i>Record the rating on the first page</i></span>		

D 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in a land use that generates runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	2
<b>Rating of Landscape Potential</b> If score is: <input type="checkbox"/> 3 = H <input checked="" type="checkbox"/> 1 or 2 = M <input type="checkbox"/> 0 = L <span style="float: right;"><i>Record the rating on the first page</i></span>		

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. <u>The wetland is in a landscape that has flooding problems.</u> Choose the description that best matches conditions around the wetland being rated. <i>Do not add points. Choose the highest score if more than one condition is met.</i> The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds), AND Flooding occurs in sub-basin that is immediately down-gradient of wetland <input type="checkbox"/> points = 2 Surface flooding problems are in a sub-basin farther down-gradient <input checked="" type="checkbox"/> points = 1 The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why _____ <input type="checkbox"/> points = 0 There are no problems with flooding downstream of the wetland <input type="checkbox"/> points = 0		1
D 6.2. Has the site has been identified as important for flood storage or flood conveyance in a regional flood control plan?		0
Total for D 6		1
<b>Rating of Value</b> If score is: <input type="checkbox"/> 2-4 = H <input checked="" type="checkbox"/> 1 = M <input type="checkbox"/> 0 = L <span style="float: right;"><i>Record the rating on the first page</i></span>		



Wetland name or number 1A

<b>H 1.6. Special habitat features</b> <i>Check the habitat features that are present in the wetland. The number of checks is the number of points.</i> <input type="checkbox"/> Loose rocks larger than 4 in OR large, downed, woody debris (> 4 in diameter) within the area of surface ponding or in stream. <input checked="" type="checkbox"/> Cattails or bulrushes are present within the wetland. <input type="checkbox"/> Standing snags (diameter at the bottom > 4 in) in the wetland or within 30 m (100 ft) of the edge. <input checked="" type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded. <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 45 degree slope) OR signs of recent beaver activity <input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation ( <i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i> )		2
Total for H 1	Add the points in the boxes above	13

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L Record the rating on the first page

<b>H 2.0. Does the landscape have the potential to support habitat functions of the site?</b>		
<b>H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is:</b> <i>Calculate: % undisturbed habitat</i> <u>1</u> + [(% moderate and low intensity land uses)/2] <u>15</u> = <u>16</u> % > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1km Polygon points = 2 10-19% of 1km Polygon points = 1 <10% of 1km Polygon points = 0		1
<b>H 2.2. Undisturbed habitat in 1 km Polygon around wetland.</b> <i>Calculate: % undisturbed habitat</i> <u>38</u> + [(% moderate and low intensity land uses)/2] <u>17</u> = <u>55</u> % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of Polygon points = 0		3
<b>H 2.3. Land use intensity in 1 km Polygon:</b> > 50% of Polygon is high intensity land use points = (- 2) Does not meet criterion above points = 0		0
<b>H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs</b> Yes = 3 No = 0		0
Total for H 2	Add the points in the boxes above	4

**Rating of Landscape Potential** If score is:  4-9 = H  1-3 = M  < 1 = L Record the rating on the first page

<b>H 3.0. Is the habitat provided by the site valuable to society?</b>		
<b>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose the highest score that applies to the wetland being rated</b> Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see Appendix B) — It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists) — It is mapped as a location for an individual WDFW 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 within 100 m (see Appendix B) points = 1 Site does not meet any of the criteria above points = 0		0

**Rating of Value** If score is:  2 = H  1 = M  0 = L Record the rating on the first page

Wetland is mapped in a T/R/S with a rare plant population. However, the population was found and is outside the wetland.

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

*Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.*

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Vernal pools</b>                      Is the wetland <b>less than 4000 ft<sup>2</sup></b>, and does it meet at least <b>two</b> of the following criteria?                      — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input.                      — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.</i>                      — The soil in the wetland is shallow [<math>&lt; 1</math> ft (30 cm) deep] and is underlain by an impermeable layer such as basalt or clay.                      — Surface water is present for less than 120 days during the wet season.  <input type="radio"/> Yes – Go to <b>SC 1.1</b> <input type="radio"/> No = <b>Not a vernal pool</b></p> <p>SC 1.1. Is the vernal pool relatively undisturbed in February and March?  <input type="radio"/> Yes – Go to <b>SC 1.2</b> <input type="radio"/> No = <b>Not a vernal pool with special characteristics</b></p>	
<p>SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Category III</b></p>	<p><b>Cat. II</b> <b>Cat. III</b></p>
<p><b>SC 2.0. Alkali wetlands</b>                      Does the wetland meet <b>one</b> of the following criteria?                      — The wetland has a conductivity <math>&gt; 3.0</math> mS/cm.                      — The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as “alkali” species (see Table 4 for list of plants found in alkali systems).                      — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt.  <b>OR</b> does the wetland unit meet two of the following three sub-criteria?                      — Salt encrustations around more than 75% of the edge of the wetland                      — More than <math>\frac{3}{4}</math> of the plant cover consists of species listed on Table 4                      — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands.  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not an alkali wetland</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0. Wetlands of High Conservation Value (WHCV)</b>                      SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  <input type="radio"/> Yes – Go to <b>SC 3.2</b> <input type="radio"/> No – Go to <b>SC 3.3</b>                      SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>  <input type="radio"/> Yes – <b>Contact WNHP/WDNR and go to SC 3.4</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b></p>	<p><b>Cat. I</b></p>

Wetland is mapped in a T/R/S with a rare plant population. However, the population was found and is outside the wetland.

<p><b>SC 4.0 Bogs and Calcareous Fens</b>          Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? <i>Use the key below to identify if the wetland is a bog or calcareous fen. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <i>See Appendix C for a field key to identify organic soils.</i>  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No – Go to <b>SC 4.2</b></p> <p>SC 4.2. Does an area within the wetland 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?  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No = <b>Is not a bog for rating</b></p> <p>SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.4</b>  <b>NOTE:</b> 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 5 are present, the wetland is a bog.</p> <p>SC 4.4. Is an area with peats or mucks forested (&gt; 30% cover) with 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 5 provide more than 30% of the cover under the canopy?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.5</b></p> <p>SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks?  <input type="radio"/> Yes = <b>Is a Calcareous Fen for purpose of rating</b> <input type="radio"/> No – Go to <b>SC 4.6</b></p> <p>SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met:          — Marl deposits [calcium carbonate (CaCO<sub>3</sub>) precipitate] occur on the soil surface or plant stems          — The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland  <input type="radio"/> Yes = <b>Is a Category I calcareous fen</b> <input type="radio"/> No = <b>Is not a calcareous fen</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p>
<p><b>SC 5.0. Forested Wetlands</b>          Does the wetland have an area of forest rooted within its boundary that meets <b>at least one</b> of the following three criteria? (<i>Continue only if you have identified that a forested class is present in question H 1.1</i>)</p> <ul style="list-style-type: none"> <li>— The wetland is within the 100 year floodplain of a river or stream</li> <li>— Aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species</li> <li>— There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (<i>see definitions in question H3.1</i>)</li> </ul> <p style="text-align: right;"><input type="radio"/> Yes – Go to <b>SC 5.1</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p> <p>SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.2</b></p> <p>SC 5.2. Does the wetland have areas where aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.3</b></p> <p>SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No – Go to <b>SC 5.4</b></p> <p>SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. II</p> <p style="text-align: center;">Cat. II</p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the highest rating if wetland falls into several categories</i>          If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p style="text-align: center;">NA</p>

# Appendix B: WDFW Priority Habitats in Eastern Washington

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: **NOTE:** *This question is independent of the land use between the wetland 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*).
- **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. 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 and 80-160 years old east 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.
- **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.
- **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 > 12 in (30 cm) in eastern 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.
- **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).
- **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).
- **Juniper Savannah:** All juniper woodlands.

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

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Wetland name or number 1B

## RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): Leavenworth: Region 1 Date of site visit: 6/10/15  
 Rated by R. Walker; Grette Associates Trained by Ecology?  Yes \_\_\_ No Date of training 9/05; 4/15  
 HGM Class used for rating Slope Wetland has multiple HGM classes? \_\_\_ Y  N

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

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

### 1. Category of wetland based on FUNCTIONS

- \_\_\_ Category I – Total score = 22-27
- \_\_\_ Category II – Total score = 19-21
- \_\_\_ Category III – Total score = 16-18
- Category IV – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	
Landscape Potential	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	
Value	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	<b>TOTAL</b>
<b>Score Based on Ratings</b>	5	4	5	14

**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
	<i>Circle the appropriate category</i>
Vernal Pools	II <input type="checkbox"/> III <input type="checkbox"/>
Alkali	I <input type="checkbox"/>
Wetland of High Conservation Value	I <input type="checkbox"/>
Bog and Calcareous Fens	I <input type="checkbox"/>
Old Growth or Mature Forest – slow growing	I <input type="checkbox"/>
Aspen Forest	I <input type="checkbox"/>
Old Growth or Mature Forest – fast growing	II <input type="checkbox"/>
Floodplain forest	II <input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>

Wetland name or number 1B

**Maps and figures required to answer questions correctly for Eastern Washington  
Depressional Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	
Map of the contributing basin	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 wetland is found (website)	D 3.3	

**Riverine Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
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)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

**Lake Fringe Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	L 3.3	

**Slope Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	1
Hydroperiods	H 1.2, H 1.3	1
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	1
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	1
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	S 2.1, S 5.1	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	7
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	13
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	S 3.3	14



**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 wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

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

**SLOPE WETLANDS**

Points  
(only 1  
score per  
box)

**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 average slope of wetland: ( <i>a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance</i> )		
Slope is 1% or less	<input type="checkbox"/> points = 3	1
Slope is > 1% - 2%	<input type="checkbox"/> points = 2	
Slope is > 2% - 5%	<input checked="" type="checkbox"/> points = 1	
Slope is greater than 5%	<input type="checkbox"/> points = 0	

S 1.2. The soil 2 in below the surface (or duff layer) is true clay or tureorganic (*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	<input type="checkbox"/> points = 6	0
Dense, uncut, herbaceous plants > ½ of area	<input type="checkbox"/> points = 3	
Dense, woody, plants > ½ of area	<input type="checkbox"/> points = 2	
Dense, uncut, herbaceous plants > ¼ of area	<input type="checkbox"/> points = 1	
Does not meet any of the criteria above for plants <b>Mowed grasses</b>	<input checked="" type="checkbox"/> points = 0	

Total for S 1

Add the points in the boxes above

1

**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. 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  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 to a stream, river, or lake that is on the 303(d) list (*within 1 mi*)?  
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 drainage or basin in which wetland is found*)?  
Yes = 2 No = 0

2

Total for S 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 1B

**SLOPE WETLANDS**

**Hydrologic Functions** - Indicators that the site functions to reduce flooding and erosion

Points  
(only 1  
score per  
box)

S 4.0. Does the site have the potential to reduce flooding and 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  
 All other conditions points = 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 of the site?

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland 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 surface 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  
 No flooding problems anywhere downstream points = 0

1

S 6.2. Has the site been identified as important for flood storage and flood conveyance in a regional flood control plan? Yes = 2 No = 0

0

Total for S 6 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

NOTES and FIELD OBSERVATIONS:



Wetland name or number 1B

<b>H 1.6. Special habitat features</b> <i>Check the habitat features that are present in the wetland. The number of checks is the number of points.</i> <input type="checkbox"/> Loose rocks larger than 4 in OR large, downed, woody debris (> 4 in diameter) within the area of surface ponding or in stream. <input type="checkbox"/> Cattails or bulrushes are present within the wetland. <input type="checkbox"/> Standing snags (diameter at the bottom > 4 in) in the wetland or within 30 m (100 ft) of the edge. <input type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded. <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 45 degree slope) OR signs of recent beaver activity <input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation ( <i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i> )		0
Total for H 1	Add the points in the boxes above	1

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L Record the rating on the first page

<b>H 2.0. Does the landscape have the potential to support habitat functions of the site?</b>		
<b>H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is:</b> <i>Calculate: % undisturbed habitat</i> <u>0</u> + [(% moderate and low intensity land uses)/2] <u>11</u> = <u>11</u> % > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1km Polygon points = 2 10-19% of 1km Polygon points = 1 <10% of 1km Polygon points = 0		1
<b>H 2.2. Undisturbed habitat in 1 km Polygon around wetland.</b> <i>Calculate: % undisturbed habitat</i> <u>44</u> + [(% moderate and low intensity land uses)/2] <u>12</u> = <u>56</u> % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of Polygon points = 0		3
<b>H 2.3. Land use intensity in 1 km Polygon:</b> > 50% of Polygon is high intensity land use points = (- 2) Does not meet criterion above points = 0		0
<b>H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs</b> Yes = 3 No = 0		0
Total for H 2	Add the points in the boxes above	4

**Rating of Landscape Potential** If score is:  4-9 = H  1-3 = M  < 1 = L Record the rating on the first page

<b>H 3.0. Is the habitat provided by the site valuable to society?</b>		
<b>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose the highest score that applies to the wetland being rated</b> Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see Appendix B) — It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists) — It is mapped as a location for an individual WDFW 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 within 100 m (see Appendix B) points = 1 Site does not meet any of the criteria above points = 0		0

**Rating of Value** If score is:  2 = H  1 = M  0 = L Record the rating on the first page

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

*Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.*

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Vernal pools</b>                      Is the wetland <b>less than 4000 ft<sup>2</sup></b>, and does it meet at least <b>two</b> of the following criteria?                      — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input.                      — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.</i>                      — The soil in the wetland is shallow [<math>&lt; 1</math> ft (30 cm) deep] and is underlain by an impermeable layer such as basalt or clay.                      — Surface water is present for less than 120 days during the wet season.  <input type="radio"/> Yes – Go to <b>SC 1.1</b> <input type="radio"/> No = <b>Not a vernal pool</b></p> <p>SC 1.1. Is the vernal pool relatively undisturbed in February and March?  <input type="radio"/> Yes – Go to <b>SC 1.2</b> <input type="radio"/> No = <b>Not a vernal pool with special characteristics</b></p>	
<p>SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Category III</b></p>	<p><b>Cat. II</b> <b>Cat. III</b></p>
<p><b>SC 2.0. Alkali wetlands</b>                      Does the wetland meet <b>one</b> of the following criteria?                      — The wetland has a conductivity <math>&gt; 3.0</math> mS/cm.                      — The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as “alkali” species (see Table 4 for list of plants found in alkali systems).                      — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt.  <b>OR</b> does the wetland unit meet two of the following three sub-criteria?                      — Salt encrustations around more than 75% of the edge of the wetland                      — More than <math>\frac{3}{4}</math> of the plant cover consists of species listed on Table 4                      — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands.  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not an alkali wetland</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0. Wetlands of High Conservation Value (WHCV)</b>                      SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  <input type="radio"/> Yes – Go to <b>SC 3.2</b> <input type="radio"/> No – Go to <b>SC 3.3</b>                      SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>  <input type="radio"/> Yes – <b>Contact WNHP/WDNR and go to SC 3.4</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b></p>	<p><b>Cat. I</b></p>

<p><b>SC 4.0 Bogs and Calcareous Fens</b>          Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? <i>Use the key below to identify if the wetland is a bog or calcareous fen. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <i>See Appendix C for a field key to identify organic soils.</i>  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No – Go to <b>SC 4.2</b></p> <p>SC 4.2. Does an area within the wetland 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?  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No = <b>Is not a bog for rating</b></p> <p>SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.4</b>  <b>NOTE:</b> 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 5 are present, the wetland is a bog.</p> <p>SC 4.4. Is an area with peats or mucks forested (&gt; 30% cover) with 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 5 provide more than 30% of the cover under the canopy?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.5</b></p> <p>SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks?  <input type="radio"/> Yes = <b>Is a Calcareous Fen for purpose of rating</b> <input type="radio"/> No – Go to <b>SC 4.6</b></p> <p>SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met:          — Marl deposits [calcium carbonate (CaCO<sub>3</sub>) precipitate] occur on the soil surface or plant stems          — The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland  <input type="radio"/> Yes = <b>Is a Category I calcareous fen</b> <input type="radio"/> No = <b>Is not a calcareous fen</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p>
<p><b>SC 5.0. Forested Wetlands</b>          Does the wetland have an area of forest rooted within its boundary that meets <b>at least one</b> of the following three criteria? (<i>Continue only if you have identified that a forested class is present in question H 1.1</i>)</p> <ul style="list-style-type: none"> <li>— The wetland is within the 100 year floodplain of a river or stream</li> <li>— Aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species</li> <li>— There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (<i>see definitions in question H3.1</i>)</li> </ul> <p style="text-align: right;"><input type="radio"/> Yes – Go to <b>SC 5.1</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p> <p>SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.2</b></p> <p>SC 5.2. Does the wetland have areas where aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.3</b></p> <p>SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No – Go to <b>SC 5.4</b></p> <p>SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. II</p> <p style="text-align: center;">Cat. II</p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the highest rating if wetland falls into several categories</i>          If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p style="text-align: center;">N/A</p>

# Appendix B: WDFW Priority Habitats in Eastern Washington

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: **NOTE:** *This question is independent of the land use between the wetland 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*).
- **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. 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 and 80-160 years old east 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.
- **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.
- **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 > 12 in (30 cm) in eastern 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.
- **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).
- **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).
- **Juniper Savannah:** All juniper woodlands.

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

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Wetland name or number 3A

## RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): Leavenworth: Region 3 Date of site visit: 6/10/15  
 Rated by R. Walker; Grette Associates Trained by Ecology?  Yes \_\_\_ No Date of training 9/05; 4/14  
 HGM Class used for rating Slope Wetland has multiple HGM classes?  Y \_\_\_ N

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

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

### 1. Category of wetland based on FUNCTIONS

- Category I – Total score = 22-27
- Category II – Total score = 19-21
- Category III – Total score = 16-18
- Category IV – Total score = 9-15

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

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	
Landscape Potential	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	
Value	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	<b>TOTAL</b>
<b>Score Based on Ratings</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>18</b>

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
	<i>Circle the appropriate category</i>
Vernal Pools	II <input type="checkbox"/> III <input type="checkbox"/>
Alkali	I <input type="checkbox"/>
Wetland of High Conservation Value	I <input type="checkbox"/>
Bog and Calcareous Fens	I <input type="checkbox"/>
Old Growth or Mature Forest – slow growing	I <input type="checkbox"/>
Aspen Forest	I <input type="checkbox"/>
Old Growth or Mature Forest – fast growing	II <input type="checkbox"/>
Floodplain forest	II <input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>

## Maps and figures required to answer questions correctly for Eastern Washington Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	
Map of the contributing basin	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 wetland is found (website)	D 3.3	

## Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
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)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

## Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	L 3.3	

## Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	2
Hydroperiods	H 1.2, H 1.3	2
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	2
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	2
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	S 2.1, S 5.1	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	8
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	13
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	S 3.3	14



**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 wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

*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.*

<b>SLOPE WETLANDS</b>		Points (only 1 score per box)
<b>Water Quality Functions</b> - 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 average slope of wetland: ( <i>a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance</i> ) Slope is 1% or less <input type="checkbox"/> points = 3 Slope is > 1% - 2% <input type="checkbox"/> points = 2 Slope is > 2% - 5% <input checked="" type="checkbox"/> points = 1 Slope is greater than 5% <input type="checkbox"/> points = 0	1	
S 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or tureorganic ( <i>use NRCS definitions</i> ): 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. <i>Dense means you have trouble seeing the soil surface (&gt;75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i> Dense, uncut, herbaceous plants > 90% of the wetland area <input checked="" type="checkbox"/> points = 6 Dense, uncut, herbaceous plants > ½ of area <input type="checkbox"/> points = 3 Dense, woody, plants > ½ of area <input type="checkbox"/> points = 2 Dense, uncut, herbaceous plants > ¼ of area <input type="checkbox"/> points = 1 Does not meet any of the criteria above for plants <input type="checkbox"/> points = 0	6	
Total for S 1	Add the points in the boxes above	7

**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. 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	1	
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	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 wetland discharge directly to a stream, river, or lake that is on the 303(d) list ( <i>within 1 mi</i> )? Yes = 1 No = 0	1	
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i> 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 ( <i>answer YES if there is a TMDL for the drainage or basin in which wetland is found</i> )? Yes = 2 No = 0	2	
Total for S 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 3A

<b>SLOPE WETLANDS</b>		Points (only 1 score per box)
<b>Hydrologic Functions</b> - Indicators that the site functions to reduce flooding and erosion		
S 4.0. Does the site have the potential to reduce flooding and 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. <i>Stems of plants should be thick enough (usually &gt; 1/8 in), or dense enough, to remain erect during surface flows.</i> Dense, uncut, <b>rigid</b> plants cover > 90% of the area of the wetland All other conditions		1
		points = 1 points = 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 of the site?		
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses that generate excess surface runoff?		1
		Yes = 1 No = 0

**Rating of Landscape Potential** If score is:  1 = M  0 = L

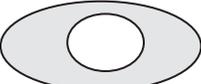
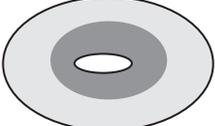
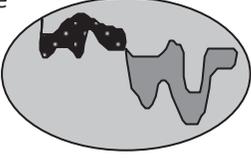
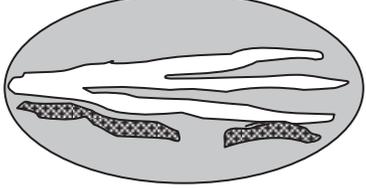
*Record the rating on the first page*

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 surface 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		1
		points = 2 points = 1 points = 0
S 6.2. Has the site been identified as important for flood storage and flood conveyance in a regional flood control plan?		0
		Yes = 2 No = 0
Total for S 6	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*

NOTES and FIELD OBSERVATIONS:

<b>These questions apply to wetlands of all HGM classes.</b>		(only 1 score per box)
<b>HABITAT FUNCTIONS</b> - Indicators that site functions to provide important habitat		
H 1.0. Does the wetland have the potential to provide habitat for many species?		
<p>H 1.1. Structure of the plant community:  <i>Check the Cowardin vegetation classes present and categories of emergent plants. Size threshold for each category is <math>\geq \frac{1}{4}</math> ac or <math>\geq 10\%</math> of the wetland if wetland is <math>&lt; 2.5</math> ac.</i></p> <p><input type="checkbox"/> Aquatic bed</p> <p><input type="checkbox"/> Emergent plants 0-12 in (0-30 cm) high are the highest layer and have <math>&gt; 30\%</math> cover</p> <p><input checked="" type="checkbox"/> Emergent plants &gt;12-40 in (<math>&gt;30</math>-100 cm) high are the highest layer with <math>&gt;30\%</math> cover</p> <p><input checked="" type="checkbox"/> Emergent plants <math>&gt; 40</math> in (<math>&gt; 100</math> cm) high are the highest layer with <math>&gt;30\%</math> cover</p> <p><input type="checkbox"/> Scrub-shrub (areas where shrubs have <math>&gt;30\%</math> cover) <span style="float: right;">4 or more checks: points = 3</span></p> <p><input type="checkbox"/> Forested (areas where trees have <math>&gt;30\%</math> cover) <span style="float: right;">3 checks: points = 2</span></p> <p style="color: red;">Aquatic bed only covers <math>\sim 0.08</math> ac., or 4% of the wetland <span style="float: right;">2 checks: points = 1</span></p> <p style="text-align: right;">1 check: points = 0</p>	1	
H 1.2. Is one of the vegetation types Aquatic Bed?	Yes = 1 No = 0	0
H 1.3. <u>Surface water</u>		
<p>H 1.3.1. Does the wetland have areas of open water (without emergent or shrub plants) over at least <math>\frac{1}{4}</math> ac <b>OR</b> 10% of its area during the March to early June <b>OR</b> in August to the end of September? <i>Answer YES for Lake Fringe wetlands.</i></p> <p style="text-align: right;"><input type="checkbox"/> Yes = 3 points &amp; go to H 1.4 <input checked="" type="checkbox"/> No = go to H 1.3.2</p> <p>H 1.3.2. Does the wetland have an intermittent or permanent, and unvegetated stream within its boundaries, or along one side, over at least <math>\frac{1}{4}</math> ac or 10% of its area? <i>Answer yes only if H 1.3.1 is No.</i></p> <p style="text-align: right;"><input type="checkbox"/> Yes = 3 <input checked="" type="checkbox"/> No = 0</p>		0
H 1.4. <u>Richness of plant species</u>		
<p>Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. <i>Different patches of the same species can be combined to meet the size threshold. You do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Russian olive, Phragmites, Canadian thistle, yellow-flag iris, and saltcedar (Tamarisk)</i></p> <p># of species _____</p> <p style="text-align: right;">Scoring: <math>&gt; 9</math> species: points = 2          4-9 species: points = 1  <math>&lt; 4</math> species: points = 0</p>		1
H 1.5. <u>Interspersion of habitats</u>		
<p>Decide from the diagrams below whether interspersion among types of plant structures (described in H 1.1), and unvegetated areas (open water or mudflats) is high, moderate, low, or none.</p> <p><i>Use map of Cowardin and emergent plant classes prepared for questions H 1.1 and map of open water from H 1.3. If you have four or more plant classes or three classes and open water, the rating is always high.</i></p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>None = 0 points <input type="checkbox"/></p> </div> <div style="text-align: center;">  <p>Low = 1 point <input type="checkbox"/></p> </div> <div style="text-align: center;">  <p>Moderate = 2 points <input checked="" type="checkbox"/></p> </div> <div style="text-align: center;">  </div> </div> <p>All three diagrams in this row are</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;"> <p>High = 3 points <input type="checkbox"/></p>  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>Riparian braided channels with 2 classes</p> </div> </div>		Figure__  2

<p>H 1.6. <u>Special habitat features</u>  <i>Check the habitat features that are present in the wetland. The number of checks is the number of points.</i>  <input type="checkbox"/> Loose rocks larger than 4 in OR large, downed, woody debris (&gt; 4 in diameter) within the area of surface ponding or in stream.  <input checked="" type="checkbox"/> Cattails or bulrushes are present within the wetland.  <input type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 in) in the wetland or within 30 m (100 ft) of the edge.  <input checked="" type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded.  <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt; 45 degree slope) OR signs of recent beaver activity  <input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (<i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i>)</p>	2
<p>Total for H 1</p>	6

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L Record the rating on the first page

<p>H 2.0. Does the landscape have the potential to support habitat functions of the site?</p>	
<p>H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is:  <i>Calculate:</i> % undisturbed habitat <u>0</u> + [(% moderate and low intensity land uses)/2] <u>28</u> = <u>28</u> %                  &gt; 1/3 (33.3%) of 1 km Polygon points = 3                  20-33% of 1km Polygon points = 2                  10-19% of 1km Polygon points = 1                  &lt;10% of 1km Polygon points = 0</p>	2
<p>H 2.2. Undisturbed habitat in 1 km Polygon around wetland.  <i>Calculate:</i> % undisturbed habitat <u>16</u> + [(% moderate and low intensity land uses)/2] <u>28</u> = <u>44</u> %                  Undisturbed habitat &gt; 50% of Polygon points = 3                  Undisturbed habitat 10 - 50% and in 1-3 patches points = 2                  Undisturbed habitat 10 - 50% and &gt; 3 patches points = 1                  Undisturbed habitat &lt; 10% of Polygon points = 0</p>	1
<p>H 2.3. Land use intensity in 1 km Polygon:                  &gt; 50% of Polygon is high intensity land use points = (- 2)                  Does not meet criterion above points = 0</p>	0
<p>H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. <i>Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs</i>                  Yes = 3 No = 0</p>	0
<p>Total for H 2</p>	3

**Rating of Landscape Potential** If score is:  4-9 = H  1-3 = M  < 1 = L Record the rating on the first page

<p>H 3.0. Is the habitat provided by the site valuable to society?</p>	
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose the highest score that applies to the wetland being rated</i>                  Site meets ANY of the following criteria: points = 2                  — It has 3 or more priority habitats within 100 m (see Appendix B)                  — It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists)                  — It is mapped as a location for an individual WDFW 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 within 100 m (see Appendix B) points = 1                  Site does not meet any of the criteria above points = 0</p>	0

**Rating of Value** If score is:  2 = H  1 = M  0 = L Record the rating on the first page

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

**Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Vernal pools</b>                      Is the wetland <b>less than 4000 ft<sup>2</sup></b>, and does it meet at least <b>two</b> of the following criteria?                      — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input.                      — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.</i>                      — The soil in the wetland is shallow [<math>&lt; 1</math> ft (30 cm) deep] and is underlain by an impermeable layer such as basalt or clay.                      — Surface water is present for less than 120 days during the wet season.  <input type="radio"/> Yes – Go to <b>SC 1.1</b> <input type="radio"/> No = <b>Not a vernal pool</b></p> <p>SC 1.1. Is the vernal pool relatively undisturbed in February and March?  <input type="radio"/> Yes – Go to <b>SC 1.2</b> <input type="radio"/> No = <b>Not a vernal pool with special characteristics</b></p>	
<p>SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Category III</b></p>	<p><b>Cat. II</b> <b>Cat. III</b></p>
<p><b>SC 2.0. Alkali wetlands</b>                      Does the wetland meet <b>one</b> of the following criteria?                      — The wetland has a conductivity <math>&gt; 3.0</math> mS/cm.                      — The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as “alkali” species (see Table 4 for list of plants found in alkali systems).                      — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt.  <b>OR</b> does the wetland unit meet two of the following three sub-criteria?                      — Salt encrustations around more than 75% of the edge of the wetland                      — More than <math>\frac{3}{4}</math> of the plant cover consists of species listed on Table 4                      — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands.  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not an alkali wetland</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0. Wetlands of High Conservation Value (WHCV)</b>                      SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  <input type="radio"/> Yes – Go to <b>SC 3.2</b> <input type="radio"/> No – Go to <b>SC 3.3</b>                      SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>  <input type="radio"/> Yes – <b>Contact WNHP/WDNR and go to SC 3.4</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b></p>	<p><b>Cat. I</b></p>

<p><b>SC 4.0 Bogs and Calcareous Fens</b>          Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? <i>Use the key below to identify if the wetland is a bog or calcareous fen. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <i>See Appendix C for a field key to identify organic soils.</i>  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No – Go to <b>SC 4.2</b></p> <p>SC 4.2. Does an area within the wetland 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?  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No = <b>Is not a bog for rating</b></p> <p>SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.4</b>  <b>NOTE:</b> 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 5 are present, the wetland is a bog.</p> <p>SC 4.4. Is an area with peats or mucks forested (&gt; 30% cover) with 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 5 provide more than 30% of the cover under the canopy?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.5</b></p> <p>SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks?  <input type="radio"/> Yes = <b>Is a Calcareous Fen for purpose of rating</b> <input type="radio"/> No – Go to <b>SC 4.6</b></p> <p>SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met:  <input type="checkbox"/> Marl deposits [calcium carbonate (CaCO<sub>3</sub>) precipitate] occur on the soil surface or plant stems  <input type="checkbox"/> The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland  <input type="radio"/> Yes = <b>Is a Category I calcareous fen</b> <input type="radio"/> No = <b>Is not a calcareous fen</b></p>	<p>Cat. I</p> <p>Cat. I</p>
<p><b>SC 5.0. Forested Wetlands</b>          Does the wetland have an area of forest rooted within its boundary that meets <b>at least one</b> of the following three criteria? (<i>Continue only if you have identified that a forested class is present in question H 1.1</i>)</p> <ul style="list-style-type: none"> <li>— The wetland is within the 100 year floodplain of a river or stream</li> <li>— Aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species</li> <li>— There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (<i>see definitions in question H3.1</i>)</li> </ul> <p><input type="radio"/> Yes – Go to <b>SC 5.1</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p> <p>SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.2</b></p> <p>SC 5.2. Does the wetland have areas where aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.3</b></p> <p>SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No – Go to <b>SC 5.4</b></p> <p>SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p>	<p>Cat. I</p> <p>Cat. I</p> <p>Cat. II</p> <p>Cat. II</p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the highest rating if wetland falls into several categories</i>          If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p>N/A</p>

# Appendix B: WDFW Priority Habitats in Eastern Washington

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: **NOTE:** *This question is independent of the land use between the wetland 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*).
- **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. 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 and 80-160 years old east 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.
- **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.
- **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 > 12 in (30 cm) in eastern 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.
- **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).
- **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).
- **Juniper Savannah:** All juniper woodlands.

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

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Wetland name or number 3B

## RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): Leavenworth: Region 3 Date of site visit: 6/10/15  
 Rated by R. Walker; Grette Associates Trained by Ecology?  Yes \_\_\_ No Date of training 9/05; 4/14  
 HGM Class used for rating Slope Wetland has multiple HGM classes?  Y \_\_\_ N

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

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

### 1. Category of wetland based on FUNCTIONS

- Category I – Total score = 22-27
- Category II – Total score = 19-21
- Category III – Total score = 16-18
- Category IV – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	
Landscape Potential	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	
Value	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	<b>TOTAL</b>
<b>Score Based on Ratings</b>	6	5	4	15

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

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

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
	<i>Circle the appropriate category</i>
Vernal Pools	II <input type="checkbox"/> III <input type="checkbox"/>
Alkali	I <input type="checkbox"/>
Wetland of High Conservation Value	I <input type="checkbox"/>
Bog and Calcareous Fens	I <input type="checkbox"/>
Old Growth or Mature Forest – slow growing	I <input type="checkbox"/>
Aspen Forest	I <input type="checkbox"/>
Old Growth or Mature Forest – fast growing	II <input type="checkbox"/>
Floodplain forest	II <input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>

**Maps and figures required to answer questions correctly for Eastern Washington  
Depressional Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	
Map of the contributing basin	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 wetland is found (website)	D 3.3	

**Riverine Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
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)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

**Lake Fringe Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	L 3.3	

**Slope Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	2
Hydroperiods	H 1.2, H 1.3	2
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	2
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	2
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	S 2.1, S 5.1	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	8
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	13
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	S 3.3	14



**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 wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

*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.*

<b>SLOPE WETLANDS</b>		Points (only 1 score per box)
<b>Water Quality Functions</b> - Indicators that the site functions to improve water quality		
<b>S 1.0. Does the site have the potential to improve water quality?</b>		
S 1.1. Characteristics of average slope of wetland: ( <i>a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance</i> ) Slope is 1% or less <input type="checkbox"/> points = 3 Slope is > 1% - 2% <input type="checkbox"/> points = 2 Slope is > 2% - 5% <input checked="" type="checkbox"/> points = 1 Slope is greater than 5% <input type="checkbox"/> points = 0	<b>1</b>	
S 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or tureorganic ( <i>use NRCS definitions</i> ): Yes = 3 No = 0	<b>0</b>	
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. <i>Dense means you have trouble seeing the soil surface (&gt;75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i> Dense, uncut, herbaceous plants > 90% of the wetland area <input type="checkbox"/> points = 6 Dense, uncut, herbaceous plants > ½ of area <input type="checkbox"/> points = 3 Dense, woody, plants > ½ of area <input type="checkbox"/> points = 2 Dense, uncut, herbaceous plants > ¼ of area <input type="checkbox"/> points = 1 Does not meet any of the criteria above for plants <span style="color: red;">Regularly mowed</span> <input checked="" type="checkbox"/> points = 0	<b>0</b>	
<b>Total for S 1</b>	<b>Add the points in the boxes above</b>	<b>1</b>

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

<b>S 2.0. Does the landscape have the potential to support the water quality function at the site?</b>		
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	<b>1</b>	
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	<b>0</b>	
<b>Total for S 2</b>	<b>Add the points in the boxes above</b>	<b>1</b>

**Rating of Landscape Potential** If score is:  1-2 = M  0 = L *Record the rating on the first page*

<b>S 3.0. Is the water quality improvement provided by the site valuable to society?</b>		
S 3.1. Does the wetland discharge directly to a stream, river, or lake that is on the 303(d) list ( <i>within 1 mi</i> )? Yes = 1 No = 0	<b>0</b>	
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i> Yes = 1 No = 0	<b>1</b>	
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality ( <i>answer YES if there is a TMDL for the drainage or basin in which wetland is found</i> )? Yes = 2 No = 0	<b>2</b>	
<b>Total for S 3</b>	<b>Add the points in the boxes above</b>	<b>3</b>

**Rating of Value** If score is:  2-4 = H  1 = M  0 = L *Record the rating on the first page*

Wetland name or number 3B

**SLOPE WETLANDS**

**Hydrologic Functions** - Indicators that the site functions to reduce flooding and erosion

Points  
(only 1  
score per  
box)

S 4.0. Does the site have the potential to reduce flooding and 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  
 All other conditions **Regularly mowed** points = 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 of the site?

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses that generate excess surface runoff? Yes = 1 No = 0

1

**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 surface 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  
 No flooding problems anywhere downstream points = 0

1

S 6.2. Has the site been identified as important for flood storage and flood conveyance in a regional flood control plan? Yes = 2 No = 0

0

Total for S 6 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

NOTES and FIELD OBSERVATIONS:



<b>H 1.6. Special habitat features</b> <i>Check the habitat features that are present in the wetland. The number of checks is the number of points.</i> <input type="checkbox"/> Loose rocks larger than 4 in OR large, downed, woody debris (> 4 in diameter) within the area of surface ponding or in stream. <input type="checkbox"/> Cattails or bulrushes are present within the wetland. <input type="checkbox"/> Standing snags (diameter at the bottom > 4 in) in the wetland or within 30 m (100 ft) of the edge. <input type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded. <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 45 degree slope) OR signs of recent beaver activity <input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation ( <i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i> )		0
Total for H 1	Add the points in the boxes above	0

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L Record the rating on the first page

<b>H 2.0. Does the landscape have the potential to support habitat functions of the site?</b>		
<b>H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is:</b> <i>Calculate:</i> % undisturbed habitat <u>0</u> + [(% moderate and low intensity land uses)/2] <u>28</u> = <u>28</u> % > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1km Polygon points = 2 10-19% of 1km Polygon points = 1 <10% of 1km Polygon points = 0		2
<b>H 2.2. Undisturbed habitat in 1 km Polygon around wetland.</b> <i>Calculate:</i> % undisturbed habitat <u>8</u> + [(% moderate and low intensity land uses)/2] <u>28</u> = <u>36</u> % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of Polygon points = 0		1
<b>H 2.3. Land use intensity in 1 km Polygon:</b> > 50% of Polygon is high intensity land use points = (- 2) Does not meet criterion above points = 0		0
<b>H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs</b> Yes = 3 No = 0		0
Total for H 2	Add the points in the boxes above	3

**Rating of Landscape Potential** If score is:  4-9 = H  1-3 = M  < 1 = L Record the rating on the first page

<b>H 3.0. Is the habitat provided by the site valuable to society?</b>		
<b>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose the highest score that applies to the wetland being rated</b> Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see Appendix B) — It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists) — It is mapped as a location for an individual WDFW 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 within 100 m (see Appendix B) points = 1 Site does not meet any of the criteria above points = 0		0

**Rating of Value** If score is:  2 = H  1 = M  0 = L Record the rating on the first page

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

**Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Vernal pools</b>                      Is the wetland <b>less than 4000 ft<sup>2</sup></b>, and does it meet at least <b>two</b> of the following criteria?                      — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input.                      — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.</i>                      — The soil in the wetland is shallow [<math>&lt; 1</math> ft (30 cm) deep] and is underlain by an impermeable layer such as basalt or clay.                      — Surface water is present for less than 120 days during the wet season.  <input type="radio"/> Yes – Go to <b>SC 1.1</b> <input type="radio"/> No = <b>Not a vernal pool</b></p> <p>SC 1.1. Is the vernal pool relatively undisturbed in February and March?  <input type="radio"/> Yes – Go to <b>SC 1.2</b> <input type="radio"/> No = <b>Not a vernal pool with special characteristics</b></p>	
<p>SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Category III</b></p>	<p><b>Cat. II</b> <b>Cat. III</b></p>
<p><b>SC 2.0. Alkali wetlands</b>                      Does the wetland meet <b>one</b> of the following criteria?                      — The wetland has a conductivity <math>&gt; 3.0</math> mS/cm.                      — The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as “alkali” species (see Table 4 for list of plants found in alkali systems).                      — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt.  <b>OR</b> does the wetland unit meet two of the following three sub-criteria?                      — Salt encrustations around more than 75% of the edge of the wetland                      — More than <math>\frac{3}{4}</math> of the plant cover consists of species listed on Table 4                      — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands.  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not an alkali wetland</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0. Wetlands of High Conservation Value (WHCV)</b>                      SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  <input type="radio"/> Yes – Go to <b>SC 3.2</b> <input type="radio"/> No – Go to <b>SC 3.3</b>                      SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>  <input type="radio"/> Yes – <b>Contact WNHP/WDNR and go to SC 3.4</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b></p>	<p><b>Cat. I</b></p>

<p><b>SC 4.0 Bogs and Calcareous Fens</b>          Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? <i>Use the key below to identify if the wetland is a bog or calcareous fen. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <i>See Appendix C for a field key to identify organic soils.</i>  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No – Go to <b>SC 4.2</b></p> <p>SC 4.2. Does an area within the wetland 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?  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No = <b>Is not a bog for rating</b></p> <p>SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.4</b>  <b>NOTE:</b> 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 5 are present, the wetland is a bog.</p> <p>SC 4.4. Is an area with peats or mucks forested (&gt; 30% cover) with 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 5 provide more than 30% of the cover under the canopy?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.5</b></p> <p>SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks?  <input type="radio"/> Yes = <b>Is a Calcareous Fen for purpose of rating</b> <input type="radio"/> No – Go to <b>SC 4.6</b></p> <p>SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met:  <input type="checkbox"/> Marl deposits [calcium carbonate (CaCO<sub>3</sub>) precipitate] occur on the soil surface or plant stems  <input type="checkbox"/> The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland  <input type="radio"/> Yes = <b>Is a Category I calcareous fen</b> <input type="radio"/> No = <b>Is not a calcareous fen</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p>
<p><b>SC 5.0. Forested Wetlands</b>          Does the wetland have an area of forest rooted within its boundary that meets <b>at least one</b> of the following three criteria? (<i>Continue only if you have identified that a forested class is present in question H 1.1</i>)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> The wetland is within the 100 year floodplain of a river or stream</li> <li><input type="checkbox"/> Aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species</li> <li><input type="checkbox"/> There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (<i>see definitions in question H3.1</i>)</li> </ul> <p style="text-align: right;"><input type="radio"/> Yes – Go to <b>SC 5.1</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p> <p>SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.2</b></p> <p>SC 5.2. Does the wetland have areas where aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.3</b></p> <p>SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No – Go to <b>SC 5.4</b></p> <p>SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. II</p> <p style="text-align: center;">Cat. II</p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the highest rating if wetland falls into several categories</i>          If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p style="text-align: center;">N/A</p>

# Appendix B: WDFW Priority Habitats in Eastern Washington

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: **NOTE:** *This question is independent of the land use between the wetland 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*).
- **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. 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 and 80-160 years old east 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.
- **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.
- **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 > 12 in (30 cm) in eastern 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.
- **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).
- **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).
- **Juniper Savannah:** All juniper woodlands.

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

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## RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): Leavenworth: Region 3 Date of site visit: 6/10/15  
 Rated by R. Walker; Grette Associates Trained by Ecology?  Yes  No Date of training 9/05; 4/14  
 HGM Class used for rating Slope Wetland has multiple HGM classes?  Y  N

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

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

### 1. Category of wetland based on FUNCTIONS

- Category I – Total score = 22-27
- Category II – Total score = 19-21
- Category III – Total score = 16-18
- Category IV – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	
Landscape Potential	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	
Value	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	<b>TOTAL</b>
<b>Score Based on Ratings</b>	6	5	4	15

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

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

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
	<i>Circle the appropriate category</i>
Vernal Pools	II <input type="checkbox"/> III <input type="checkbox"/>
Alkali	I <input type="checkbox"/>
Wetland of High Conservation Value	I <input type="checkbox"/>
Bog and Calcareous Fens	I <input type="checkbox"/>
Old Growth or Mature Forest – slow growing	I <input type="checkbox"/>
Aspen Forest	I <input type="checkbox"/>
Old Growth or Mature Forest – fast growing	II <input type="checkbox"/>
Floodplain forest	II <input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>

**Maps and figures required to answer questions correctly for Eastern Washington  
Depressional Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	
Map of the contributing basin	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 wetland is found (website)	D 3.3	

**Riverine Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
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)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

**Lake Fringe Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	L 3.3	

**Slope Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	2
Hydroperiods	H 1.2, H 1.3	2
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	2
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	2
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	S 2.1, S 5.1	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	9
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	13
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	S 3.3	14



**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 wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

*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.*

<b>SLOPE WETLANDS</b>		Points (only 1 score per box)
<b>Water Quality Functions</b> - 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 average slope of wetland: ( <i>a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance</i> )		
Slope is 1% or less	<input type="checkbox"/> points = 3	1
Slope is > 1% - 2%	<input type="checkbox"/> points = 2	
Slope is > 2% - 5%	<input checked="" type="checkbox"/> points = 1	
Slope is greater than 5%	<input type="checkbox"/> points = 0	
S 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or tureorganic ( <i>use NRCS definitions</i> ): Yes = 3 No = 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. <i>Dense means you have trouble seeing the soil surface (&gt;75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i>		
Dense, uncut, herbaceous plants > 90% of the wetland area	<input type="checkbox"/> points = 6	0
Dense, uncut, herbaceous plants > ½ of area	<input type="checkbox"/> points = 3	
Dense, woody, plants > ½ of area	<input type="checkbox"/> points = 2	
Dense, uncut, herbaceous plants > ¼ of area	<input type="checkbox"/> points = 1	
Does not meet any of the criteria above for plants <span style="color: red;">Regularly mowed</span>	<input checked="" type="checkbox"/> points = 0	
Total for S 1		

**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. 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	1
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		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 wetland discharge directly to a stream, river, or lake that is on the 303(d) list ( <i>within 1 mi</i> )?	Yes = 1 No = 0	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i>	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 ( <i>answer YES if there is a TMDL for the drainage or basin in which wetland is found</i> )?	Yes = 2 No = 0	2
Total for S 3		4

**Rating of Value** If score is:  2-4 = H  1 = M  0 = L *Record the rating on the first page*

<b>SLOPE WETLANDS</b>		Points (only 1 score per box)
<b>Hydrologic Functions</b> - Indicators that the site functions to reduce flooding and erosion		
S 4.0. Does the site have the potential to reduce flooding and 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. <i>Stems of plants should be thick enough (usually &gt; 1/8 in), or dense enough, to remain erect during surface flows.</i> Dense, uncut, <b>rigid</b> plants cover > 90% of the area of the wetland All other conditions <b>Regularly mowed</b>		0
		points = 1 points = 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 of the site?		
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses that generate excess surface runoff?		1
		Yes = 1 No = 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 surface 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		1
		points = 2 points = 1 points = 0
S 6.2. Has the site been identified as important for flood storage and flood conveyance in a regional flood control plan?		0
		Yes = 2 No = 0
Total for S 6	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

NOTES and FIELD OBSERVATIONS:



<p>H 1.6. <u>Special habitat features</u>  <i>Check the habitat features that are present in the wetland. The number of checks is the number of points.</i>  <input type="checkbox"/> Loose rocks larger than 4 in OR large, downed, woody debris (&gt; 4 in diameter) within the area of surface ponding or in stream.  <input checked="" type="checkbox"/> Cattails or bulrushes are present within the wetland.  <input type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 in) in the wetland or within 30 m (100 ft) of the edge.  <input checked="" type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded.  <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt; 45 degree slope) OR signs of recent beaver activity  <input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (<i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i>)</p>	2
<p>Total for H 1</p>	6

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L Record the rating on the first page

<p>H 2.0. Does the landscape have the potential to support habitat functions of the site?</p>	
<p>H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is:  <i>Calculate:</i> % undisturbed habitat <u>0</u> + [(% moderate and low intensity land uses)/2] <u>28</u> = <u>28</u> %                  &gt; 1/3 (33.3%) of 1 km Polygon points = 3                  20-33% of 1km Polygon points = 2                  10-19% of 1km Polygon points = 1                  &lt;10% of 1km Polygon points = 0</p>	2
<p>H 2.2. Undisturbed habitat in 1 km Polygon around wetland.  <i>Calculate:</i> % undisturbed habitat <u>7</u> + [(% moderate and low intensity land uses)/2] <u>28</u> = <u>35</u> %                  Undisturbed habitat &gt; 50% of Polygon points = 3                  Undisturbed habitat 10 - 50% and in 1-3 patches points = 2                  Undisturbed habitat 10 - 50% and &gt; 3 patches points = 1                  Undisturbed habitat &lt; 10% of Polygon points = 0</p>	1
<p>H 2.3. Land use intensity in 1 km Polygon:                  &gt; 50% of Polygon is high intensity land use points = (- 2)                  Does not meet criterion above points = 0</p>	0
<p>H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. <i>Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs</i>                  Yes = 3 No = 0</p>	0
<p>Total for H 2</p>	3

**Rating of Landscape Potential** If score is:  4-9 = H  1-3 = M  < 1 = L Record the rating on the first page

<p>H 3.0. Is the habitat provided by the site valuable to society?</p>	
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose the highest score that applies to the wetland being rated</i>                  Site meets ANY of the following criteria: points = 2                  — It has 3 or more priority habitats within 100 m (see Appendix B)                  — It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists)                  — It is mapped as a location for an individual WDFW 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 within 100 m (see Appendix B) points = 1                  Site does not meet any of the criteria above points = 0</p>	0

**Rating of Value** If score is:  2 = H  1 = M  0 = L Record the rating on the first page

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

**Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Vernal pools</b>                      Is the wetland <b>less than 4000 ft<sup>2</sup></b>, and does it meet at least <b>two</b> of the following criteria?                      — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input.                      — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.</i>                      — The soil in the wetland is shallow [<math>&lt; 1</math> ft (30 cm) deep] and is underlain by an impermeable layer such as basalt or clay.                      — Surface water is present for less than 120 days during the wet season.  <input type="radio"/> Yes – Go to <b>SC 1.1</b> <input type="radio"/> No = <b>Not a vernal pool</b></p> <p>SC 1.1. Is the vernal pool relatively undisturbed in February and March?  <input type="radio"/> Yes – Go to <b>SC 1.2</b> <input type="radio"/> No = <b>Not a vernal pool with special characteristics</b></p>	
<p>SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Category III</b></p>	<p><b>Cat. II</b> <b>Cat. III</b></p>
<p><b>SC 2.0. Alkali wetlands</b>                      Does the wetland meet <b>one</b> of the following criteria?                      — The wetland has a conductivity <math>&gt; 3.0</math> mS/cm.                      — The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as “alkali” species (see Table 4 for list of plants found in alkali systems).                      — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt.  <b>OR</b> does the wetland unit meet two of the following three sub-criteria?                      — Salt encrustations around more than 75% of the edge of the wetland                      — More than <math>\frac{3}{4}</math> of the plant cover consists of species listed on Table 4                      — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands.  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not an alkali wetland</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0. Wetlands of High Conservation Value (WHCV)</b>                      SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  <input type="radio"/> Yes – Go to <b>SC 3.2</b> <input type="radio"/> No – Go to <b>SC 3.3</b>                      SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>  <input type="radio"/> Yes – <b>Contact WNHP/WDNR and go to SC 3.4</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b></p>	<p><b>Cat. I</b></p>

<p><b>SC 4.0 Bogs and Calcareous Fens</b>          Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? <i>Use the key below to identify if the wetland is a bog or calcareous fen. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <i>See Appendix C for a field key to identify organic soils.</i>  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No – Go to <b>SC 4.2</b></p> <p>SC 4.2. Does an area within the wetland 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?  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No = <b>Is not a bog for rating</b></p> <p>SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.4</b>  <b>NOTE:</b> 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 5 are present, the wetland is a bog.</p> <p>SC 4.4. Is an area with peats or mucks forested (&gt; 30% cover) with 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 5 provide more than 30% of the cover under the canopy?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.5</b></p> <p>SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks?  <input type="radio"/> Yes = <b>Is a Calcareous Fen for purpose of rating</b> <input type="radio"/> No – Go to <b>SC 4.6</b></p> <p>SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met:  <input type="checkbox"/> Marl deposits [calcium carbonate (CaCO<sub>3</sub>) precipitate] occur on the soil surface or plant stems  <input type="checkbox"/> The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland  <input type="radio"/> Yes = <b>Is a Category I calcareous fen</b> <input type="radio"/> No = <b>Is not a calcareous fen</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p>
<p><b>SC 5.0. Forested Wetlands</b>          Does the wetland have an area of forest rooted within its boundary that meets <b>at least one</b> of the following three criteria? (<i>Continue only if you have identified that a forested class is present in question H 1.1</i>)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> The wetland is within the 100 year floodplain of a river or stream</li> <li><input type="checkbox"/> Aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species</li> <li><input type="checkbox"/> There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (<i>see definitions in question H3.1</i>)</li> </ul> <p style="text-align: right;"><input type="radio"/> Yes – Go to <b>SC 5.1</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p> <p>SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.2</b></p> <p>SC 5.2. Does the wetland have areas where aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.3</b></p> <p>SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No – Go to <b>SC 5.4</b></p> <p>SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. II</p> <p style="text-align: center;">Cat. II</p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the highest rating if wetland falls into several categories</i>          If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p style="text-align: center;">N/A</p>

# Appendix B: WDFW Priority Habitats in Eastern Washington

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: **NOTE:** *This question is independent of the land use between the wetland 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*).
- **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. 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 and 80-160 years old east 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.
- **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.
- **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 > 12 in (30 cm) in eastern 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.
- **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).
- **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).
- **Juniper Savannah:** All juniper woodlands.

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

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Wetland name or number Ditch

## RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): Cascade (CSD) Ditch Date of site visit: 6/23/16  
 Rated by R. Walker; Grette Associates Trained by Ecology?  Yes \_\_\_ No Date of training 9/05; 4/14  
 HGM Class used for rating Slope Wetland has multiple HGM classes? \_\_\_ Y  N

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

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

### 1. Category of wetland based on FUNCTIONS

- \_\_\_ Category I – Total score = 22-27
- \_\_\_ Category II – Total score = 19-21
- \_\_\_ Category III – Total score = 16-18
- Category IV – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	
Landscape Potential	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	
Value	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	<b>TOTAL</b>
<b>Score Based on Ratings</b>	6	4	4	14

**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
	<i>Circle the appropriate category</i>
Vernal Pools	II <input type="checkbox"/> III <input type="checkbox"/>
Alkali	I <input type="checkbox"/>
Wetland of High Conservation Value	I <input type="checkbox"/>
Bog and Calcareous Fens	I <input type="checkbox"/>
Old Growth or Mature Forest – slow growing	I <input type="checkbox"/>
Aspen Forest	I <input type="checkbox"/>
Old Growth or Mature Forest – fast growing	II <input type="checkbox"/>
Floodplain forest	II <input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>

Wetland name or number Ditch

**Maps and figures required to answer questions correctly for Eastern Washington  
Depressional Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	
Map of the contributing basin	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 wetland is found (website)	D 3.3	

**Riverine Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
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)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

**Lake Fringe Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	L 3.3	

**Slope Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	2
Hydroperiods	H 1.2, H 1.3	2
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	2
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	2
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	S 2.1, S 5.1	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	9
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	13
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	S 3.3	14



Wetland name or number Ditch

**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 wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

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

**SLOPE WETLANDS**

Points  
(only 1  
score per  
box)

**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 average slope of wetland: ( <i>a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance</i> )		
Slope is 1% or less	<input type="checkbox"/> points = 3	1
Slope is > 1% - 2%	<input type="checkbox"/> points = 2	
Slope is > 2% - 5%	<input checked="" type="checkbox"/> points = 1	
Slope is greater than 5%	<input type="checkbox"/> points = 0	

S 1.2. The soil 2 in below the surface (or duff layer) is true clay or tureorganic (*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	<input type="checkbox"/> points = 6	0
Dense, uncut, herbaceous plants > ½ of area	<input type="checkbox"/> points = 3	
Dense, woody, plants > ½ of area	<input type="checkbox"/> points = 2	
Dense, uncut, herbaceous plants > ¼ of area	<input type="checkbox"/> points = 1	
Does not meet any of the criteria above for plants	<input checked="" type="checkbox"/> points = 0	

Total for S 1

Add the points in the boxes above

1

**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. 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	1

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

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 wetland discharge directly to a stream, river, or lake that is on the 303(d) list ( <i>within 1 mi</i> )?		
	Yes = 1 No = 0	1

S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i>		
	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 ( <i>answer YES if there is a TMDL for the drainage or basin in which wetland is found</i> )?		
	Yes = 2 No = 0	2

Total for S 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 Ditch

<b>SLOPE WETLANDS</b>		Points (only 1 score per box)
<b>Hydrologic Functions</b> - Indicators that the site functions to reduce flooding and erosion		
S 4.0. Does the site have the potential to reduce flooding and 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. <i>Stems of plants should be thick enough (usually &gt; 1/8 in), or dense enough, to remain erect during surface flows.</i> Dense, uncut, <b>rigid</b> plants cover > 90% of the area of the wetland All other conditions		0
		points = 1 points = 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 of the site?		
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses that generate excess surface runoff? Yes = 1 No = 0		1

**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 surface 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		1
		points = 2 points = 1 points = 0
S 6.2. Has the site been identified as important for flood storage and flood conveyance in a regional flood control plan? Yes = 2 No = 0		0
Total for S 6		1
		Add the points in the boxes above

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

*Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:



Wetland name or number Ditch

<p>H 1.6. <u>Special habitat features</u>  <i>Check the habitat features that are present in the wetland. The number of checks is the number of points.</i>  <input type="checkbox"/> Loose rocks larger than 4 in OR large, downed, woody debris (&gt; 4 in diameter) within the area of surface ponding or in stream.  <input type="checkbox"/> Cattails or bulrushes are present within the wetland.  <input type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 in) in the wetland or within 30 m (100 ft) of the edge.  <input checked="" type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded.  <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt; 45 degree slope) OR signs of recent beaver activity  <input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (<i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i>)</p>	1
<p>Total for H 1</p>	4

**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 functions of the site?	
<p>H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is:  <i>Calculate:</i> % undisturbed habitat <u>0</u> + [(% moderate and low intensity land uses)/2] <u>20</u> = <u>20</u> %            &gt; 1/3 (33.3%) of 1 km Polygon points = 3            20-33% of 1km Polygon points = 2            10-19% of 1km Polygon points = 1            &lt;10% of 1km Polygon points = 0</p>	2
<p>H 2.2. Undisturbed habitat in 1 km Polygon around wetland.  <i>Calculate:</i> % undisturbed habitat <u>5</u> + [(% moderate and low intensity land uses)/2] <u>25</u> = <u>30</u> %            Undisturbed habitat &gt; 50% of Polygon points = 3            Undisturbed habitat 10 - 50% and in 1-3 patches points = 2            Undisturbed habitat 10 - 50% and &gt; 3 patches points = 1            Undisturbed habitat &lt; 10% of Polygon points = 0</p>	1
<p>H 2.3. Land use intensity in 1 km Polygon:            &gt; 50% of Polygon is high intensity land use points = (- 2)            Does not meet criterion above points = 0</p>	0
<p>H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. <i>Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs</i>            Yes = 3 No = 0</p>	0
<p>Total for H 2</p>	3

**Rating of Landscape Potential** If score is:  4-9 = 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?	
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose the highest score that applies to the wetland being rated</i>            Site meets ANY of the following criteria: points = 2  <input type="checkbox"/> It has 3 or more priority habitats within 100 m (see Appendix B)  <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists)  <input type="checkbox"/> It is mapped as a location for an individual WDFW species  <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources  <input checked="" type="checkbox"/> 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 100 m (see Appendix B) points = 1            Site does not meet any of the criteria above points = 0</p>	0

**Rating of Value** If score is:  2 = H  1 = M  0 = L Record the rating on the first page

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

**Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Vernal pools</b>                      Is the wetland <b>less than 4000 ft<sup>2</sup></b>, and does it meet at least <b>two</b> of the following criteria?                      — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input.                      — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.</i>                      — The soil in the wetland is shallow [<math>&lt; 1</math> ft (30 cm) deep] and is underlain by an impermeable layer such as basalt or clay.                      — Surface water is present for less than 120 days during the wet season.  <input type="radio"/> Yes – Go to <b>SC 1.1</b> <input type="radio"/> No = <b>Not a vernal pool</b></p> <p>SC 1.1. Is the vernal pool relatively undisturbed in February and March?  <input type="radio"/> Yes – Go to <b>SC 1.2</b> <input type="radio"/> No = <b>Not a vernal pool with special characteristics</b></p>	
<p>SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Category III</b></p>	<p><b>Cat. II</b> <b>Cat. III</b></p>
<p><b>SC 2.0. Alkali wetlands</b>                      Does the wetland meet <b>one</b> of the following criteria?                      — The wetland has a conductivity <math>&gt; 3.0</math> mS/cm.                      — The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as “alkali” species (see Table 4 for list of plants found in alkali systems).                      — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt.  <b>OR</b> does the wetland unit meet two of the following three sub-criteria?                      — Salt encrustations around more than 75% of the edge of the wetland                      — More than <math>\frac{3}{4}</math> of the plant cover consists of species listed on Table 4                      — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands.  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not an alkali wetland</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0. Wetlands of High Conservation Value (WHCV)</b>                      SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  <input type="radio"/> Yes – Go to <b>SC 3.2</b> <input type="radio"/> No – Go to <b>SC 3.3</b>                      SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>  <input type="radio"/> Yes – <b>Contact WNHP/WDNR and go to SC 3.4</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b></p>	<p><b>Cat. I</b></p>

<p><b>SC 4.0 Bogs and Calcareous Fens</b>          Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? <i>Use the key below to identify if the wetland is a bog or calcareous fen. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <i>See Appendix C for a field key to identify organic soils.</i>  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No – Go to <b>SC 4.2</b></p> <p>SC 4.2. Does an area within the wetland 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?  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No = <b>Is not a bog for rating</b></p> <p>SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.4</b>  <b>NOTE:</b> 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 5 are present, the wetland is a bog.</p> <p>SC 4.4. Is an area with peats or mucks forested (&gt; 30% cover) with 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 5 provide more than 30% of the cover under the canopy?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.5</b></p> <p>SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks?  <input type="radio"/> Yes = <b>Is a Calcareous Fen for purpose of rating</b> <input type="radio"/> No – Go to <b>SC 4.6</b></p> <p>SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met:          — Marl deposits [calcium carbonate (CaCO<sub>3</sub>) precipitate] occur on the soil surface or plant stems          — The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland  <input type="radio"/> Yes = <b>Is a Category I calcareous fen</b> <input type="radio"/> No = <b>Is not a calcareous fen</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p>
<p><b>SC 5.0. Forested Wetlands</b>          Does the wetland have an area of forest rooted within its boundary that meets <b>at least one</b> of the following three criteria? (<i>Continue only if you have identified that a forested class is present in question H 1.1</i>)</p> <ul style="list-style-type: none"> <li>— The wetland is within the 100 year floodplain of a river or stream</li> <li>— Aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species</li> <li>— There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (<i>see definitions in question H3.1</i>)</li> </ul> <p style="text-align: right;"><input type="radio"/> Yes – Go to <b>SC 5.1</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p> <p>SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.2</b></p> <p>SC 5.2. Does the wetland have areas where aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.3</b></p> <p>SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No – Go to <b>SC 5.4</b></p> <p>SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. II</p> <p style="text-align: center;">Cat. II</p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the highest rating if wetland falls into several categories</i>          If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p style="text-align: center;">N/A</p>

# Appendix B: WDFW Priority Habitats in Eastern Washington

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: **NOTE:** *This question is independent of the land use between the wetland 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*).
- **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. 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 and 80-160 years old east 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.
- **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.
- **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 > 12 in (30 cm) in eastern 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.
- **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).
- **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).
- **Juniper Savannah:** All juniper woodlands.

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

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Wetland name or number 4A

## RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): Leavenworth: Region 4 Date of site visit: 4/22/15  
 Rated by J. Dirkse; Grette Associates Trained by Ecology?  Yes \_\_\_ No Date of training 9/05; 4/14  
 HGM Class used for rating Depressional Wetland has multiple HGM classes? \_\_\_ Y  N

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

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

### 1. Category of wetland based on FUNCTIONS

- \_\_\_ Category I – Total score = 22-27
- \_\_\_ Category II – Total score = 19-21
- Category III – Total score = 16-18
- \_\_\_ Category IV – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	
Landscape Potential	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	
Value	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	<b>TOTAL</b>
<b>Score Based on Ratings</b>	8	6	4	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
	<i>Circle the appropriate category</i>
Vernal Pools	II <input type="checkbox"/> III <input type="checkbox"/>
Alkali	I <input type="checkbox"/>
Wetland of High Conservation Value	I <input type="checkbox"/>
Bog and Calcareous Fens	I <input type="checkbox"/>
Old Growth or Mature Forest – slow growing	I <input type="checkbox"/>
Aspen Forest	I <input type="checkbox"/>
Old Growth or Mature Forest – fast growing	II <input type="checkbox"/>
Floodplain forest	II <input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>

**Maps and figures required to answer questions correctly for Eastern Washington  
Depressional Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	3
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	3
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	NA
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	3
Map of the contributing basin	D 5.3	6
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	9
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	13
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	D 3.3	14

**Riverine Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
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)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

**Lake Fringe Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	L 3.3	

**Slope Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	S 3.3	

## HGM Classification of Wetland in Eastern Washington

For questions 1-4, 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 1-4 apply, and go to Question 5.

1. Does the entire unit **meet both** of the following criteria?  
\_\_\_ The vegetated part of the wetland is on the water side of the Ordinary High Water Mark of a body of permanent open water (without any plants on the surface) that is at least 20 ac (8 ha) in size  
\_\_\_ At least 30% of the open water area is deeper than 10 ft (3 m)  
 NO - go to 2  YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)
2. 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 3  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 foot deep).
3. 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 10 years.  
 NO - go to 4  YES - The wetland class is **Riverine**  
**NOTE:** The Riverine wetland can contain depressions that are filled with water when the river is not flooding.
4. 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 5  YES - The wetland class is **Depressional**
5. 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 1-4 APPLY TO DIFFERENT AREAS IN THE WETLAND 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.

Wetland name or number 4A

**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 wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

*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.*

<b>DEPRESSIONAL WETLANDS</b>		Points (only 1 score per box)
<b>Water Quality Functions</b> - Indicators that the site functions to improve water quality		
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland:		
Wetland has no surface water outlet	<input checked="" type="checkbox"/> points = 5	5
Wetland has an intermittently flowing outlet	<input type="checkbox"/> points = 3	
Wetland has a highly constricted permanently flowing outlet	<input type="checkbox"/> points = 3	
Wetland has a permanently flowing, unconstricted, surface outlet	<input type="checkbox"/> points = 1	
D 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic ( <i>use NRCS definitions of soils</i> )	<input type="checkbox"/> YES = 3 <input checked="" type="checkbox"/> NO = 0	0
D 1.3. <u>Characteristics of persistent vegetation</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes)		
Wetland has persistent, ungrazed, vegetation for $> \frac{2}{3}$ of area	<input checked="" type="checkbox"/> points = 5	5
Wetland has persistent, ungrazed, vegetation from $\frac{1}{3}$ to $\frac{2}{3}$ of area	<input type="checkbox"/> points = 3	
Wetland has persistent, ungrazed vegetation from $\frac{1}{10}$ to $< \frac{1}{3}$ of area	<input type="checkbox"/> points = 1	
Wetland has persistent, ungrazed vegetation $< \frac{1}{10}$ of area	<input type="checkbox"/> points = 0	
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.</i>		
Area seasonally ponded is $> \frac{1}{2}$ total area of wetland	<input type="checkbox"/> points = 3	0
Area seasonally ponded is $\frac{1}{4}$ - $\frac{1}{2}$ total area of wetland	<input type="checkbox"/> points = 1	
Area seasonally ponded is $< \frac{1}{4}$ total area of wetland	<input checked="" type="checkbox"/> points = 0	
Total for D 1	Add the points in the boxes above	10

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

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is $> 10\%$ of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	1
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1- D 2.3? Source <u>horses</u>	Yes = 1 No = 0	1
Total for D 2	Add the points in the boxes above	4

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

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where water quality is an issue in some aquatic resource [303(d) list, eutrophic lakes, problems with nuisance and toxic algae]?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality ( <i>answer YES if there is a TMDL for the drainage or basin in which the wetland is found</i> )?	Yes = 2 No = 0	2
Total for D 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*

<b>DEPRESSIONAL WETLANDS</b>		Points (only 1 score per box)
<b>Hydrologic Functions</b> - Indicators that the site functions to reduce flooding and erosion.		
D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. <u>Characteristics of surface water outflows from the wetland:</u> Wetland has no surface water outlet <input checked="" type="checkbox"/> points = 8 Wetland has an intermittently flowing outlet <input type="checkbox"/> points = 4 Wetland has a highly constricted permanently flowing outlet <input type="checkbox"/> points = 4 Wetland has a permanently flowing unconstricted surface outlet <input type="checkbox"/> points = 0 <i>(If outlet is a ditch and not permanently flowing treat wetland as "intermittently flowing")</i>		<b>8</b>
D 4.2. <u>Depth of storage during wet periods:</u> <i>Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or deepest part (if dry).</i> Seasonal ponding: > 3 ft above the lowest point in wetland or the surface of permanent ponding <input type="checkbox"/> points = 8 Seasonal ponding: 2 ft - < 3 ft above the lowest point in wetland or the surface of permanent pond <input type="checkbox"/> points = 6 The wetland is a headwater wetland <input type="checkbox"/> points = 4 Seasonal ponding: 1 ft - < 2 ft <input type="checkbox"/> points = 4 Seasonal ponding: 6 in - < 1 ft <input type="checkbox"/> points = 2 Seasonal ponding: < 6 in or wetland has only saturated soils <input checked="" type="checkbox"/> points = 0		<b>0</b>
Total for D 4		Add the points in the boxes above <b>8</b>
<b>Rating of Site Potential</b> If score is: <input type="checkbox"/> 12-16 = H <input checked="" type="checkbox"/> 6-11 = M <input type="checkbox"/> 0-5 = L <span style="float: right;"><i>Record the rating on the first page</i></span>		

D 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	<b>1</b>
D 5.2. Is > 10% of the area within 150 ft of the wetland in a land use that generates runoff?	Yes = 1 No = 0	<b>1</b>
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?	Yes = 1 No = 0	<b>1</b>
Total for D 5		Add the points in the boxes above <b>3</b>
<b>Rating of Landscape Potential</b> If score is: <input checked="" type="checkbox"/> 3 = H <input type="checkbox"/> 1 or 2 = M <input type="checkbox"/> 0 = L <span style="float: right;"><i>Record the rating on the first page</i></span>		

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. <u>The wetland is in a landscape that has flooding problems.</u> Choose the description that best matches conditions around the wetland being rated. <i>Do not add points. Choose the highest score if more than one condition is met.</i> The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds), AND Flooding occurs in sub-basin that is immediately down-gradient of wetland <input type="checkbox"/> points = 2 Surface flooding problems are in a sub-basin farther down-gradient <input type="checkbox"/> points = 1 The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why <u>Surface water typically does not reach wetland</u> <input checked="" type="checkbox"/> points = 0 There are no problems with flooding downstream of the wetland <input type="checkbox"/> points = 0		<b>0</b>
D 6.2. Has the site has been identified as important for flood storage or flood conveyance in a regional flood control plan?		Yes = 2 No = 0
Total for D 6		Add the points in the boxes above <b>0</b>
<b>Rating of Value</b> If score is: <input type="checkbox"/> 2-4 = H <input type="checkbox"/> 1 = M <input checked="" type="checkbox"/> 0 = L <span style="float: right;"><i>Record the rating on the first page</i></span>		



<b>H 1.6. Special habitat features</b> <i>Check the habitat features that are present in the wetland. The number of checks is the number of points.</i> <input type="checkbox"/> Loose rocks larger than 4 in OR large, downed, woody debris (> 4 in diameter) within the area of surface ponding or in stream. <input type="checkbox"/> Cattails or bulrushes are present within the wetland. <input type="checkbox"/> Standing snags (diameter at the bottom > 4 in) in the wetland or within 30 m (100 ft) of the edge. <input type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded. <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 45 degree slope) OR signs of recent beaver activity <input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation ( <i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i> )		0
Total for H 1	Add the points in the boxes above	0

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L Record the rating on the first page

<b>H 2.0. Does the landscape have the potential to support habitat functions of the site?</b>		
<b>H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is:</b> <i>Calculate:</i> % undisturbed habitat <u>0</u> + [(% moderate and low intensity land uses)/2] <u>28</u> = <u>28</u> % > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1km Polygon points = 2 10-19% of 1km Polygon points = 1 <10% of 1km Polygon points = 0		2
<b>H 2.2. Undisturbed habitat in 1 km Polygon around wetland.</b> <i>Calculate:</i> % undisturbed habitat <u>5</u> + [(% moderate and low intensity land uses)/2] <u>32</u> = <u>37</u> % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of Polygon points = 0		1
<b>H 2.3. Land use intensity in 1 km Polygon:</b> > 50% of Polygon is high intensity land use points = (- 2) Does not meet criterion above points = 0		0
<b>H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs</b> Yes = 3 No = 0		0
Total for H 2	Add the points in the boxes above	3

**Rating of Landscape Potential** If score is:  4-9 = H  1-3 = M  < 1 = L Record the rating on the first page

<b>H 3.0. Is the habitat provided by the site valuable to society?</b>		
<b>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose the highest score that applies to the wetland being rated</b> Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see Appendix B) — It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists) — It is mapped as a location for an individual WDFW 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 within 100 m (see Appendix B) points = 1 Site does not meet any of the criteria above points = 0		0

**Rating of Value** If score is:  2 = H  1 = M  0 = L Record the rating on the first page

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

**Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Vernal pools</b></p> <p>Is the wetland <b>less than 4000 ft<sup>2</sup></b>, and does it meet at least <b>two</b> of the following criteria?</p> <ul style="list-style-type: none"> <li>— Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input.</li> <li>— Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.</i></li> <li>— The soil in the wetland is shallow [<math>&lt; 1</math> ft (30 cm) deep] and is underlain by an impermeable layer such as basalt or clay.</li> <li>— Surface water is present for less than 120 days during the wet season.</li> </ul> <p style="text-align: right;"><input type="radio"/> Yes – Go to <b>SC 1.1</b> <input type="radio"/> No = <b>Not a vernal pool</b></p> <p>SC 1.1. Is the vernal pool relatively undisturbed in February and March?  <span style="float: right;"><input type="radio"/> Yes – Go to <b>SC 1.2</b> <input type="radio"/> No = <b>Not a vernal pool with special characteristics</b></span></p>	
<p>SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)?  <span style="float: right;"><input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Category III</b></span></p>	<p><b>Cat. II</b> <b>Cat. III</b></p>
<p><b>SC 2.0. Alkali wetlands</b></p> <p>Does the wetland meet <b>one</b> of the following criteria?</p> <ul style="list-style-type: none"> <li>— The wetland has a conductivity <math>&gt; 3.0</math> mS/cm.</li> <li>— The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as “alkali” species (see Table 4 for list of plants found in alkali systems).</li> <li>— If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt.</li> </ul> <p><b>OR</b> does the wetland unit meet two of the following three sub-criteria?</p> <ul style="list-style-type: none"> <li>— Salt encrustations around more than 75% of the edge of the wetland</li> <li>— More than <math>\frac{3}{4}</math> of the plant cover consists of species listed on Table 4</li> <li>— A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands.</li> </ul> <p style="text-align: right;"><input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not an alkali wetland</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0. Wetlands of High Conservation Value (WHCV)</b></p> <p>SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  <span style="float: right;"><input type="radio"/> Yes – Go to <b>SC 3.2</b> <input type="radio"/> No – Go to <b>SC 3.3</b></span></p> <p>SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  <span style="float: right;"><input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b></span></p> <p>SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>  <span style="float: right;"><input type="radio"/> Yes – <b>Contact WNHP/WDNR and go to SC 3.4</b> <input type="radio"/> No = <b>Not a WHCV</b></span></p> <p>SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website?  <span style="float: right;"><input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b></span></p>	<p><b>Cat. I</b></p>

<p><b>SC 4.0 Bogs and Calcareous Fens</b>          Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? <i>Use the key below to identify if the wetland is a bog or calcareous fen. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <i>See Appendix C for a field key to identify organic soils.</i>  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No – Go to <b>SC 4.2</b></p> <p>SC 4.2. Does an area within the wetland 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?  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No = <b>Is not a bog for rating</b></p> <p>SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.4</b>  <b>NOTE:</b> 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 5 are present, the wetland is a bog.</p> <p>SC 4.4. Is an area with peats or mucks forested (&gt; 30% cover) with 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 5 provide more than 30% of the cover under the canopy?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.5</b></p> <p>SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks?  <input type="radio"/> Yes = <b>Is a Calcareous Fen for purpose of rating</b> <input type="radio"/> No – Go to <b>SC 4.6</b></p> <p>SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met:          — Marl deposits [calcium carbonate (CaCO<sub>3</sub>) precipitate] occur on the soil surface or plant stems          — The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland  <input type="radio"/> Yes = <b>Is a Category I calcareous fen</b> <input type="radio"/> No = <b>Is not a calcareous fen</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p>
<p><b>SC 5.0. Forested Wetlands</b>          Does the wetland have an area of forest rooted within its boundary that meets <b>at least one</b> of the following three criteria? (<i>Continue only if you have identified that a forested class is present in question H 1.1</i>)</p> <ul style="list-style-type: none"> <li>— The wetland is within the 100 year floodplain of a river or stream</li> <li>— Aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species</li> <li>— There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (<i>see definitions in question H3.1</i>)</li> </ul> <p style="text-align: right;"><input type="radio"/> Yes – Go to <b>SC 5.1</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p> <p>SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.2</b></p> <p>SC 5.2. Does the wetland have areas where aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.3</b></p> <p>SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No – Go to <b>SC 5.4</b></p> <p>SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. II</p> <p style="text-align: center;">Cat. II</p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the highest rating if wetland falls into several categories</i>          If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p style="text-align: center;">NA</p>

# Appendix B: WDFW Priority Habitats in Eastern Washington

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: **NOTE:** *This question is independent of the land use between the wetland 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*).
- **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. 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 and 80-160 years old east 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.
- **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.
- **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 > 12 in (30 cm) in eastern 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.
- **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).
- **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).
- **Juniper Savannah:** All juniper woodlands.

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

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Wetland name or number 4B

## RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): Leavenworth: Region 4 Date of site visit: 4/22/15  
 Rated by J. Dirkse; Grette Associates Trained by Ecology?  Yes \_\_\_ No Date of training 9/05; 4/14  
 HGM Class used for rating Depressional Wetland has multiple HGM classes? \_\_\_ Y  N

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

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

### 1. Category of wetland based on FUNCTIONS

- Category I – Total score = 22-27
- Category II – Total score = 19-21
- Category III – Total score = 16-18
- Category IV – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat
<i>Circle the appropriate ratings</i>			
Site Potential	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>
Landscape Potential	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>
Value	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>
<b>Score Based on Ratings</b>	7	6	5
			<b>TOTAL</b> 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
	<i>Circle the appropriate category</i>
Vernal Pools	II <input type="checkbox"/> III <input type="checkbox"/>
Alkali	I <input type="checkbox"/>
Wetland of High Conservation Value	I <input type="checkbox"/>
Bog and Calcareous Fens	I <input type="checkbox"/>
Old Growth or Mature Forest – slow growing	I <input type="checkbox"/>
Aspen Forest	I <input type="checkbox"/>
Old Growth or Mature Forest – fast growing	II <input type="checkbox"/>
Floodplain forest	II <input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>

**Maps and figures required to answer questions correctly for Eastern Washington  
Depressional Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	3
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	3
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	3
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	3
Map of the contributing basin	D 5.3	6
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	10
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	13
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	D 3.3	14

**Riverine Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
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)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

**Lake Fringe Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	L 3.3	

**Slope Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	S 3.3	

## HGM Classification of Wetland in Eastern Washington

For questions 1-4, 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 1-4 apply, and go to Question 5.

1. Does the entire unit **meet both** of the following criteria?

- The vegetated part of the wetland is on the water side of the Ordinary High Water Mark of a body of permanent open water (without any plants on the surface) that is at least 20 ac (8 ha) in size
- At least 30% of the open water area is deeper than 10 ft (3 m)

NO - go to 2  YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)

2. 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 3  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 foot deep).

3. 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 10 years.

NO - go to 4  YES - The wetland class is **Riverine**  
**NOTE:** The Riverine wetland can contain depressions that are filled with water when the river is not flooding.

4. 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 5  YES - The wetland class is **Depressional**

5. 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 1-4 APPLY TO DIFFERENT AREAS IN THE WETLAND 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 wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

*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.*

<b>DEPRESSIONAL WETLANDS</b>		Points (only 1 score per box)
<b>Water Quality Functions</b> - Indicators that the site functions to improve water quality		
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland:		
Wetland has no surface water outlet	<input type="checkbox"/> points = 5	1
Wetland has an intermittently flowing outlet	<input type="checkbox"/> points = 3	
Wetland has a highly constricted permanently flowing outlet	<input type="checkbox"/> points = 3	
Wetland has a permanently flowing, unconstricted, surface outlet	<input checked="" type="checkbox"/> points = 1	
D 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic ( <i>use NRCS definitions of soils</i> )	<input type="checkbox"/> YES = 3 <input checked="" type="checkbox"/> NO = 0	0
D 1.3. <u>Characteristics of persistent vegetation</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes)		
Wetland has persistent, ungrazed, vegetation for $> \frac{2}{3}$ of area	<input type="checkbox"/> points = 5	1
Wetland has persistent, ungrazed, vegetation from $\frac{1}{3}$ to $\frac{2}{3}$ of area	<input type="checkbox"/> points = 3	
Wetland has persistent, ungrazed vegetation from $\frac{1}{10}$ to $< \frac{1}{3}$ of area	<input checked="" type="checkbox"/> points = 1	
Wetland has persistent, ungrazed vegetation $< \frac{1}{10}$ of area	<input type="checkbox"/> points = 0	
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.</i>		
Area seasonally ponded is $> \frac{1}{2}$ total area of wetland	<input type="checkbox"/> points = 3	0
Area seasonally ponded is $\frac{1}{4}$ - $\frac{1}{2}$ total area of wetland	<input type="checkbox"/> points = 1	
Area seasonally ponded is $< \frac{1}{4}$ total area of wetland	<input checked="" type="checkbox"/> points = 0	
Total for D 1	Add the points in the boxes above	2

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

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is $> 10\%$ of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	1
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1- D 2.3? Source <u>Horses</u>	Yes = 1 No = 0	1
Total for D 2	Add the points in the boxes above	4

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

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(d) list?	Yes = 1 No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where water quality is an issue in some aquatic resource [303(d) list, eutrophic lakes, problems with nuisance and toxic algae]?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality ( <i>answer YES if there is a TMDL for the drainage or basin in which the wetland is found</i> )?	Yes = 2 No = 0	2
Total for D 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*

<b>DEPRESSIONAL WETLANDS</b>		Points (only 1 score per box)
<b>Hydrologic Functions</b> - Indicators that the site functions to reduce flooding and erosion.		
D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. <u>Characteristics of surface water outflows from the wetland:</u> Wetland has no surface water outlet <input type="checkbox"/> points = 8 Wetland has an intermittently flowing outlet <input type="checkbox"/> points = 4 Wetland has a highly constricted permanently flowing outlet <input type="checkbox"/> points = 4 Wetland has a permanently flowing unconfined surface outlet <input checked="" type="checkbox"/> points = 0 <i>(If outlet is a ditch and not permanently flowing treat wetland as "intermittently flowing")</i>		0
D 4.2. <u>Depth of storage during wet periods:</u> <i>Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or deepest part (if dry).</i> Seasonal ponding: > 3 ft above the lowest point in wetland or the surface of permanent ponding <input type="checkbox"/> points = 8 Seasonal ponding: 2 ft - < 3 ft above the lowest point in wetland or the surface of permanent ponding <input type="checkbox"/> points = 6 The wetland is a headwater wetland <input type="checkbox"/> points = 4 Seasonal ponding: 1 ft - < 2 ft <input type="checkbox"/> points = 4 Seasonal ponding: 6 in - < 1 ft <input type="checkbox"/> points = 2 Seasonal ponding: < 6 in or wetland has only saturated soils <input checked="" type="checkbox"/> points = 0		0
Total for D 4		Add the points in the boxes above 0

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

D 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in a land use that generates runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?	Yes = 1 No = 0	1
Total for D 5		Add the points in the boxes above 3

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

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. <u>The wetland is in a landscape that has flooding problems.</u> Choose the description that best matches conditions around the wetland being rated. <i>Do not add points. Choose the highest score if more than one condition is met.</i> The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds), AND Flooding occurs in sub-basin that is immediately down-gradient of wetland <input type="checkbox"/> points = 2 Surface flooding problems are in a sub-basin farther down-gradient <input checked="" type="checkbox"/> points = 1  The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why _____ <input type="checkbox"/> points = 0 There are no problems with flooding downstream of the wetland <input type="checkbox"/> points = 0		
D 6.2. Has the site has been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6		Add the points in the boxes above 1

**Rating of Value** If score is:  2-4 = H  1 = M  0 = L *Record the rating on the first page*



<p>H 1.6. <u>Special habitat features</u>  <i>Check the habitat features that are present in the wetland. The number of checks is the number of points.</i>  <input checked="" type="checkbox"/> Loose rocks larger than 4 in OR large, downed, woody debris (&gt; 4 in diameter) within the area of surface ponding or in stream.  <input checked="" type="checkbox"/> Cattails or bulrushes are present within the wetland.  <input type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 in) in the wetland or within 30 m (100 ft) of the edge.  <input type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded.  <input checked="" type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt; 45 degree slope) OR signs of recent beaver activity  <input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (<i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i>)</p>	3
<p>Total for H 1</p>	<p>Add the points in the boxes above</p> <p>11</p>

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L Record the rating on the first page

<p>H 2.0. Does the landscape have the potential to support habitat functions of the site?</p>	
<p>H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is:  <i>Calculate:</i> % undisturbed habitat <u>0</u> + [(% moderate and low intensity land uses)/2] <u>29</u> = <u>29</u> %                  &gt; 1/3 (33.3%) of 1 km Polygon points = 3                  20-33% of 1km Polygon points = 2                  10-19% of 1km Polygon points = 1                  &lt;10% of 1km Polygon points = 0</p>	2
<p>H 2.2. Undisturbed habitat in 1 km Polygon around wetland.  <i>Calculate:</i> % undisturbed habitat <u>5</u> + [(% moderate and low intensity land uses)/2] <u>33</u> = <u>38</u> %                  Undisturbed habitat &gt; 50% of Polygon points = 3                  Undisturbed habitat 10 - 50% and in 1-3 patches points = 2                  Undisturbed habitat 10 - 50% and &gt; 3 patches points = 1                  Undisturbed habitat &lt; 10% of Polygon points = 0</p>	1
<p>H 2.3. Land use intensity in 1 km Polygon:                  &gt; 50% of Polygon is high intensity land use points = (- 2)                  Does not meet criterion above points = 0</p>	0
<p>H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. <i>Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs</i>                  Yes = 3 No = 0</p>	0
<p>Total for H 2</p>	<p>Add the points in the boxes above</p> <p>3</p>

**Rating of Landscape Potential** If score is:  4-9 = H  1-3 = M  < 1 = L Record the rating on the first page

<p>H 3.0. Is the habitat provided by the site valuable to society?</p>	
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose the highest score that applies to the wetland being rated</i>                  Site meets ANY of the following criteria: points = 2                  — It has 3 or more priority habitats within 100 m (see Appendix B)                  — It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists)                  — It is mapped as a location for an individual WDFW 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 within 100 m (see Appendix B) points = 1                  Site does not meet any of the criteria above points = 0</p>	0

**Rating of Value** If score is:  2 = H  1 = M  0 = L Record the rating on the first page

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

**Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Vernal pools</b>                      Is the wetland <b>less than 4000 ft<sup>2</sup></b>, and does it meet at least <b>two</b> of the following criteria?                      — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input.                      — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.</i>                      — The soil in the wetland is shallow [<math>&lt; 1</math> ft (30 cm) deep] and is underlain by an impermeable layer such as basalt or clay.                      — Surface water is present for less than 120 days during the wet season.  <input type="radio"/> Yes – Go to <b>SC 1.1</b> <input type="radio"/> No = <b>Not a vernal pool</b></p> <p>SC 1.1. Is the vernal pool relatively undisturbed in February and March?  <input type="radio"/> Yes – Go to <b>SC 1.2</b> <input type="radio"/> No = <b>Not a vernal pool with special characteristics</b></p>	
<p>SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Category III</b></p>	<p><b>Cat. II</b> <b>Cat. III</b></p>
<p><b>SC 2.0. Alkali wetlands</b>                      Does the wetland meet <b>one</b> of the following criteria?                      — The wetland has a conductivity <math>&gt; 3.0</math> mS/cm.                      — The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as “alkali” species (see Table 4 for list of plants found in alkali systems).                      — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt.  <b>OR</b> does the wetland unit meet two of the following three sub-criteria?                      — Salt encrustations around more than 75% of the edge of the wetland                      — More than <math>\frac{3}{4}</math> of the plant cover consists of species listed on Table 4                      — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands.  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not an alkali wetland</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0. Wetlands of High Conservation Value (WHCV)</b>                      SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  <input type="radio"/> Yes – Go to <b>SC 3.2</b> <input type="radio"/> No – Go to <b>SC 3.3</b>                      SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>  <input type="radio"/> Yes – <b>Contact WNHP/WDNR and go to SC 3.4</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b></p>	<p><b>Cat. I</b></p>

<p><b>SC 4.0 Bogs and Calcareous Fens</b>          Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? <i>Use the key below to identify if the wetland is a bog or calcareous fen. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <i>See Appendix C for a field key to identify organic soils.</i>  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No – Go to <b>SC 4.2</b></p> <p>SC 4.2. Does an area within the wetland 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?  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No = <b>Is not a bog for rating</b></p> <p>SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.4</b>  <b>NOTE:</b> 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 5 are present, the wetland is a bog.</p> <p>SC 4.4. Is an area with peats or mucks forested (&gt; 30% cover) with 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 5 provide more than 30% of the cover under the canopy?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.5</b></p> <p>SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks?  <input type="radio"/> Yes = <b>Is a Calcareous Fen for purpose of rating</b> <input type="radio"/> No – Go to <b>SC 4.6</b></p> <p>SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met:  <input type="checkbox"/> Marl deposits [calcium carbonate (CaCO<sub>3</sub>) precipitate] occur on the soil surface or plant stems  <input type="checkbox"/> The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland  <input type="radio"/> Yes = <b>Is a Category I calcareous fen</b> <input type="radio"/> No = <b>Is not a calcareous fen</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p>
<p><b>SC 5.0. Forested Wetlands</b>          Does the wetland have an area of forest rooted within its boundary that meets <b>at least one</b> of the following three criteria? (<i>Continue only if you have identified that a forested class is present in question H 1.1</i>)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> The wetland is within the 100 year floodplain of a river or stream</li> <li><input type="checkbox"/> Aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species</li> <li><input type="checkbox"/> There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (<i>see definitions in question H3.1</i>)</li> </ul> <p style="text-align: right;"><input type="radio"/> Yes – Go to <b>SC 5.1</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p> <p>SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.2</b></p> <p>SC 5.2. Does the wetland have areas where aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.3</b></p> <p>SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No – Go to <b>SC 5.4</b></p> <p>SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. II</p> <p style="text-align: center;">Cat. II</p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the highest rating if wetland falls into several categories</i>          If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p style="text-align: center;">NA</p>

# Appendix B: WDFW Priority Habitats in Eastern Washington

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: **NOTE:** *This question is independent of the land use between the wetland 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*).
- **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. 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 and 80-160 years old east 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.
- **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.
- **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 > 12 in (30 cm) in eastern 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.
- **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).
- **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).
- **Juniper Savannah:** All juniper woodlands.

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

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Wetland name or number Aldea (5A)

## RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): Leavenworth: Region 5 Date of site visit: 7/08

Rated by R. Walker; Grette Associates Trained by Ecology?  Yes  No Date of training 9/05; 4/14

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

**NOTE: Form is not complete without the figures requested (figures can be combined).**

Source of base aerial photo/map Google Earth

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

### 1. Category of wetland based on FUNCTIONS

- Category I – Total score = 22-27
- Category II – Total score = 19-21
- Category III – Total score = 16-18
- Category IV – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	
Landscape Potential	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	
Value	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	<b>TOTAL</b>
<b>Score Based on Ratings</b>	<b>7</b>	<b>7</b>	<b>5</b>	<b>19</b>

**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
	<i>Circle the appropriate category</i>
Vernal Pools	II <input type="checkbox"/> III <input type="checkbox"/>
Alkali	I <input type="checkbox"/>
Wetland of High Conservation Value	I <input type="checkbox"/>
Bog and Calcareous Fens	I <input type="checkbox"/>
Old Growth or Mature Forest – slow growing	I <input type="checkbox"/>
Aspen Forest	I <input type="checkbox"/>
Old Growth or Mature Forest – fast growing	II <input type="checkbox"/>
Floodplain forest	II <input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>

Wetland name or number Aldea (5A)

**Maps and figures required to answer questions correctly for Eastern Washington  
Depressional Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	
Map of the contributing basin	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 wetland is found (website)	D 3.3	

**Riverine Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
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)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

**Lake Fringe Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	L 3.3	

**Slope Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	3
Hydroperiods	H 1.2, H 1.3	3
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	3
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	S 2.1, S 5.1	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	10
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	13
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	S 3.3	14

## HGM Classification of Wetland in Eastern Washington

For questions 1-4, 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 1-4 apply, and go to Question 5.

1. Does the entire unit **meet both** of the following criteria?

- The vegetated part of the wetland is on the water side of the Ordinary High Water Mark of a body of permanent open water (without any plants on the surface) that is at least 20 ac (8 ha) in size
- At least 30% of the open water area is deeper than 10 ft (3 m)

NO - go to 2  YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)

2. 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 3  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 foot deep).

3. 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 10 years.

NO - go to 4  YES - The wetland class is **Riverine**  
**NOTE:** The Riverine wetland can contain depressions that are filled with water when the river is not flooding.

4. 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 5  YES - The wetland class is **Depressional**

5. 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 1-4 APPLY TO DIFFERENT AREAS IN THE WETLAND 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.

Wetland name or number Aldea (5A)

**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 wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

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

**SLOPE WETLANDS**

Points  
(only 1  
score per  
box)

**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 average slope of wetland: ( <i>a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance</i> )		
Slope is 1% or less	<input type="checkbox"/> points = 3	1
Slope is > 1% - 2%	<input type="checkbox"/> points = 2	
Slope is > 2% - 5%	<input checked="" type="checkbox"/> points = 1	
Slope is greater than 5%	<input type="checkbox"/> points = 0	

S 1.2. The soil 2 in below the surface (or duff layer) is true clay or tureorganic (*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	<input checked="" type="checkbox"/> points = 6	6
Dense, uncut, herbaceous plants > ½ of area	<input type="checkbox"/> points = 3	
Dense, woody, plants > ½ of area	<input type="checkbox"/> points = 2	
Dense, uncut, herbaceous plants > ¼ of area	<input type="checkbox"/> points = 1	
Does not meet any of the criteria above for plants	<input type="checkbox"/> points = 0	

Total for S 1

Add the points in the boxes above

7

**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. 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

1

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

1

Total for S 2

Add the points in the boxes above

2

**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 wetland discharge directly to a stream, river, or lake that is on the 303(d) list (*within 1 mi*)?  
Yes = 1 No = 0

1

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 drainage or basin in which wetland is found*)?  
Yes = 2 No = 0

2

Total for S 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 Aldea (5A)

<b>SLOPE WETLANDS</b>		Points (only 1 score per box)
<b>Hydrologic Functions</b> - Indicators that the site functions to reduce flooding and erosion		
S 4.0. Does the site have the potential to reduce flooding and 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. <i>Stems of plants should be thick enough (usually &gt; 1/8 in), or dense enough, to remain erect during surface flows.</i> Dense, uncut, <b>rigid</b> plants cover > 90% of the area of the wetland All other conditions		1
		points = 1 points = 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 of the site?		
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses that generate excess surface runoff? Yes = 1 No = 0		1

**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 surface 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		2
		points = 2 points = 1 points = 0
S 6.2. Has the site been identified as important for flood storage and flood conveyance in a regional flood control plan? Yes = 2 No = 0		2
Total for S 6		4
		Add the points in the boxes above

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

*Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:



Wetland name or number Aldea (5A)

<b>H 1.6. Special habitat features</b> <i>Check the habitat features that are present in the wetland. The number of checks is the number of points.</i> ___ Loose rocks larger than 4 in OR large, downed, woody debris (> 4 in diameter) within the area of surface ponding or in stream. <input checked="" type="checkbox"/> Cattails or bulrushes are present within the wetland. ___ Standing snags (diameter at the bottom > 4 in) in the wetland or within 30 m (100 ft) of the edge. ___ Emergent or shrub vegetation in areas that are permanently inundated/ponded. ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 45 degree slope) OR signs of recent beaver activity ___ Invasive species cover less than 20% in each stratum of vegetation ( <i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i> )		1
Total for H 1	Add the points in the boxes above	5

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L Record the rating on the first page

<b>H 2.0. Does the landscape have the potential to support habitat functions of the site?</b>		
<b>H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is:</b> <i>Calculate: % undisturbed habitat</i> <u>0</u> + [(% moderate and low intensity land uses)/2] <u>26</u> = <u>26</u> % > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1km Polygon points = 2 10-19% of 1km Polygon points = 1 <10% of 1km Polygon points = 0		3
<b>H 2.2. Undisturbed habitat in 1 km Polygon around wetland.</b> <i>Calculate: % undisturbed habitat</i> <u>5</u> + [(% moderate and low intensity land uses)/2] <u>35</u> = <u>40</u> % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of Polygon points = 0		1
<b>H 2.3. Land use intensity in 1 km Polygon:</b> > 50% of Polygon is high intensity land use points = (- 2) Does not meet criterion above points = 0		0
<b>H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs</b> Yes = 3 No = 0		0
Total for H 2	Add the points in the boxes above	4

**Rating of Landscape Potential** If score is:  4-9 = H  1-3 = M  < 1 = L Record the rating on the first page

<b>H 3.0. Is the habitat provided by the site valuable to society?</b>		
<b>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose the highest score that applies to the wetland being rated</b> Site meets ANY of the following criteria: points = 2 ___ It has 3 or more priority habitats within 100 m (see Appendix B) ___ It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists) ___ It is mapped as a location for an individual WDFW 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 within 100 m (see Appendix B) points = 1 Site does not meet any of the criteria above points = 0		0

**Rating of Value** If score is:  2 = H  1 = M  0 = L Record the rating on the first page

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

**Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.**

Wetland Type <i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	Category
<p><b>SC 1.0. Vernal pools</b> Is the wetland <b>less than 4000 ft<sup>2</sup></b>, and does it meet at least <b>two</b> of the following criteria?  — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input.  — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.</i>  — The soil in the wetland is shallow [<math>&lt; 1</math> ft (30 cm) deep] and is underlain by an impermeable layer such as basalt or clay.  — Surface water is present for less than 120 days during the wet season.  <input type="radio"/> Yes – Go to <b>SC 1.1</b> <input type="radio"/> No = <b>Not a vernal pool</b></p> <p>SC 1.1. Is the vernal pool relatively undisturbed in February and March?  <input type="radio"/> Yes – Go to <b>SC 1.2</b> <input type="radio"/> No = <b>Not a vernal pool with special characteristics</b></p>	
<p>SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Category III</b></p>	<p><b>Cat. II</b> <b>Cat. III</b></p>
<p><b>SC 2.0. Alkali wetlands</b> Does the wetland meet <b>one</b> of the following criteria?  — The wetland has a conductivity <math>&gt; 3.0</math> mS/cm.  — The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as “alkali” species (see Table 4 for list of plants found in alkali systems).  — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt.  <b>OR</b> does the wetland unit meet two of the following three sub-criteria?  — Salt encrustations around more than 75% of the edge of the wetland  — More than <math>\frac{3}{4}</math> of the plant cover consists of species listed on Table 4  — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands.  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not an alkali wetland</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0. Wetlands of High Conservation Value (WHCV)</b>  SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  <input type="radio"/> Yes – Go to <b>SC 3.2</b> <input type="radio"/> No – Go to <b>SC 3.3</b>  SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b>  SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>  <input type="radio"/> Yes – <b>Contact WNHP/WDNR and go to SC 3.4</b> <input type="radio"/> No = <b>Not a WHCV</b>  SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b></p>	<p><b>Cat. I</b></p>

<p><b>SC 4.0 Bogs and Calcareous Fens</b>          Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? <i>Use the key below to identify if the wetland is a bog or calcareous fen. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <i>See Appendix C for a field key to identify organic soils.</i>  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No – Go to <b>SC 4.2</b></p> <p>SC 4.2. Does an area within the wetland 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?  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No = <b>Is not a bog for rating</b></p> <p>SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.4</b>  <b>NOTE:</b> 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 5 are present, the wetland is a bog.</p> <p>SC 4.4. Is an area with peats or mucks forested (&gt; 30% cover) with 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 5 provide more than 30% of the cover under the canopy?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.5</b></p> <p>SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks?  <input type="radio"/> Yes = <b>Is a Calcareous Fen for purpose of rating</b> <input type="radio"/> No – Go to <b>SC 4.6</b></p> <p>SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met:          — Marl deposits [calcium carbonate (CaCO<sub>3</sub>) precipitate] occur on the soil surface or plant stems          — The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland  <input type="radio"/> Yes = <b>Is a Category I calcareous fen</b> <input type="radio"/> No = <b>Is not a calcareous fen</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p>
<p><b>SC 5.0. Forested Wetlands</b>          Does the wetland have an area of forest rooted within its boundary that meets <b>at least one</b> of the following three criteria? (<i>Continue only if you have identified that a forested class is present in question H 1.1</i>)</p> <ul style="list-style-type: none"> <li>— The wetland is within the 100 year floodplain of a river or stream</li> <li>— Aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species</li> <li>— There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (<i>see definitions in question H3.1</i>)</li> </ul> <p style="text-align: right;"><input type="radio"/> Yes – Go to <b>SC 5.1</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p> <p>SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.2</b></p> <p>SC 5.2. Does the wetland have areas where aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.3</b></p> <p>SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No – Go to <b>SC 5.4</b></p> <p>SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. II</p> <p style="text-align: center;">Cat. II</p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the highest rating if wetland falls into several categories</i>          If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p style="text-align: center;">N/A</p>

# Appendix B: WDFW Priority Habitats in Eastern Washington

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: **NOTE:** *This question is independent of the land use between the wetland 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*).
- **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. 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 and 80-160 years old east 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.
- **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.
- **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 > 12 in (30 cm) in eastern 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.
- **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).
- **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).
- **Juniper Savannah:** All juniper woodlands.

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

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Wetland name or number 6A

## RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): Leavenworth: Region 6 Date of site visit: 6/26/14  
 Rated by R.Walker; Grette Associates Trained by Ecology?  Yes \_\_\_ No Date of training 9/05; 4/14  
 HGM Class used for rating Depressional Wetland has multiple HGM classes? \_\_\_ Y  N

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

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

### 1. Category of wetland based on FUNCTIONS

- Category I – Total score = 22-27
- Category II – Total score = 19-21
- Category III – Total score = 16-18
- Category IV – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	
Landscape Potential	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	
Value	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	
<b>Score Based on Ratings</b>	<b>8</b>	<b>7</b>	<b>4</b>	<b>TOTAL</b> <b>19</b>

**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
	<i>Circle the appropriate category</i>
Vernal Pools	II <input type="checkbox"/> III <input type="checkbox"/>
Alkali	I <input type="checkbox"/>
Wetland of High Conservation Value	I <input type="checkbox"/>
Bog and Calcareous Fens	I <input type="checkbox"/>
Old Growth or Mature Forest – slow growing	I <input type="checkbox"/>
Aspen Forest	I <input type="checkbox"/>
Old Growth or Mature Forest – fast growing	II <input type="checkbox"/>
Floodplain forest	II <input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>

**Maps and figures required to answer questions correctly for Eastern Washington  
Depressional Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	4
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	4
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	4
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	4
Map of the contributing basin	D 5.3	6
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	11
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	13
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	D 3.3	14

**Riverine Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
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)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

**Lake Fringe Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	L 3.3	

**Slope Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	S 3.3	

## HGM Classification of Wetland in Eastern Washington

For questions 1-4, 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 1-4 apply, and go to Question 5.

1. Does the entire unit **meet both** of the following criteria?

- The vegetated part of the wetland is on the water side of the Ordinary High Water Mark of a body of permanent open water (without any plants on the surface) that is at least 20 ac (8 ha) in size
- At least 30% of the open water area is deeper than 10 ft (3 m)

NO - go to 2  YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)

2. 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 3  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 foot deep).

3. 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 10 years.

NO - go to 4  YES - The wetland class is **Riverine**  
**NOTE:** The Riverine wetland can contain depressions that are filled with water when the river is not flooding.

4. 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 5  YES - The wetland class is **Depressional**

5. 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 1-4 APPLY TO DIFFERENT AREAS IN THE WETLAND 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 wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

*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.*

<b>DEPRESSIONAL WETLANDS</b>		Points (only 1 score per box)
<b>Water Quality Functions</b> - Indicators that the site functions to improve water quality		
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland:		
Wetland has no surface water outlet	<input type="checkbox"/> points = 5	1
Wetland has an intermittently flowing outlet	<input type="checkbox"/> points = 3	
Wetland has a highly constricted permanently flowing outlet	<input type="checkbox"/> points = 3	
Wetland has a permanently flowing, unconstricted, surface outlet	<input checked="" type="checkbox"/> points = 1	
D 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic ( <i>use NRCS definitions of soils</i> )	<input type="checkbox"/> YES = 3 <input checked="" type="checkbox"/> NO = 0	0
D 1.3. <u>Characteristics of persistent vegetation</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes)		
Wetland has persistent, ungrazed, vegetation for $> \frac{2}{3}$ of area	<input checked="" type="checkbox"/> points = 5	5
Wetland has persistent, ungrazed, vegetation from $\frac{1}{3}$ to $\frac{2}{3}$ of area	<input type="checkbox"/> points = 3	
Wetland has persistent, ungrazed vegetation from $\frac{1}{10}$ to $< \frac{1}{3}$ of area	<input type="checkbox"/> points = 1	
Wetland has persistent, ungrazed vegetation $< \frac{1}{10}$ of area	<input type="checkbox"/> points = 0	
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.</i>		
Area seasonally ponded is $> \frac{1}{2}$ total area of wetland	<input type="checkbox"/> points = 3	0
Area seasonally ponded is $\frac{1}{4}$ - $\frac{1}{2}$ total area of wetland	<input type="checkbox"/> points = 1	
Area seasonally ponded is $< \frac{1}{4}$ total area of wetland	<input checked="" type="checkbox"/> points = 0	
Total for D 1	Add the points in the boxes above	6

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

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is $> 10\%$ of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	1
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1- D 2.3? Source _____	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	3

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

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(d) list?	Yes = 1 No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where water quality is an issue in some aquatic resource [303(d) list, eutrophic lakes, problems with nuisance and toxic algae]?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality ( <i>answer YES if there is a TMDL for the drainage or basin in which the wetland is found</i> )?	Yes = 2 No = 0	2
Total for D 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*

**DEPRESSIONAL WETLANDS**

Points  
(only 1 score  
per box)

**Hydrologic Functions** - Indicators that the site functions to reduce flooding and erosion.

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

- Wetland has no surface water outlet  points = 8
  - Wetland has an intermittently flowing outlet  points = 4
  - Wetland has a highly constricted permanently flowing outlet  points = 4
  - Wetland has a permanently flowing unconfined surface outlet  points = 0
- (If outlet is a ditch and not permanently flowing treat wetland as "intermittently flowing")*

0

D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or deepest part (if dry).*

- Seasonal ponding: > 3 ft above the lowest point in wetland or the surface of permanent ponding  points = 8
- Seasonal ponding: 2 ft - < 3 ft above the lowest point in wetland or the surface of permanent ponding  points = 6
- The wetland is a headwater wetland  points = 4
- Seasonal ponding: 1 ft - < 2 ft  points = 4
- Seasonal ponding: 6 in - < 1 ft  points = 2
- Seasonal ponding: < 6 in or wetland has only saturated soils  points = 0

2

Total for D 4

Add the points in the boxes above

2

**Rating of Site Potential** If score is:  12-16 = H  6-11 = M  0-5 = L

*Record the rating on the first page*

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

D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0

1

D 5.2. Is > 10% of the area within 150 ft of the wetland in a land use that generates runoff? Yes = 1 No = 0

1

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses? Yes = 1 No = 0

1

Total for D 5

Add the points in the boxes above

3

**Rating of Landscape Potential** If score is:  3 = H  1 or 2 = M  0 = L

*Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The wetland is in a landscape that has flooding problems.

Choose the description that best matches conditions around the wetland being rated. *Do not add points. Choose the highest score if more than one condition is met.*

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds), AND

- Flooding occurs in sub-basin that is immediately down-gradient of wetland  points = 2
- Surface flooding problems are in a sub-basin farther down-gradient  points = 1

2

The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood.

*Explain why* \_\_\_\_\_  points = 0

There are no problems with flooding downstream of the wetland  points = 0

D 6.2. Has the site has been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0

0

Total for D 6

Add the points in the boxes above

2

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

*Record the rating on the first page*



<p>H 1.6. <u>Special habitat features</u>  <i>Check the habitat features that are present in the wetland. The number of checks is the number of points.</i>  <input checked="" type="checkbox"/> Loose rocks larger than 4 in OR large, downed, woody debris (&gt; 4 in diameter) within the area of surface ponding or in stream.  <input checked="" type="checkbox"/> Cattails or bulrushes are present within the wetland.  <input checked="" type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 in) in the wetland or within 30 m (100 ft) of the edge.  <input type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded.  <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt; 45 degree slope) OR signs of recent beaver activity  <input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (<i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i>)</p>	3
<p>Total for H 1</p>	5

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L Record the rating on the first page

<p>H 2.0. Does the landscape have the potential to support habitat functions of the site?</p>	
<p>H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is:  <i>Calculate:</i> % undisturbed habitat <u>0</u> + [(% moderate and low intensity land uses)/2] <u>0</u> = <u>0</u> %                  &gt; 1/3 (33.3%) of 1 km Polygon points = 3                  20-33% of 1km Polygon points = 2                  10-19% of 1km Polygon points = 1                  &lt;10% of 1km Polygon points = 0</p>	0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around wetland.  <i>Calculate:</i> % undisturbed habitat <u>7</u> + [(% moderate and low intensity land uses)/2] <u>27</u> = <u>34</u> %                  Undisturbed habitat &gt; 50% of Polygon points = 3                  Undisturbed habitat 10 - 50% and in 1-3 patches points = 2                  Undisturbed habitat 10 - 50% and &gt; 3 patches points = 1                  Undisturbed habitat &lt; 10% of Polygon points = 0</p>	1
<p>H 2.3. Land use intensity in 1 km Polygon:                  &gt; 50% of Polygon is high intensity land use points = (- 2)                  Does not meet criterion above points = 0</p>	0
<p>H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. <i>Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs</i>                  Yes = 3 No = 0</p>	0
<p>Total for H 2</p>	1

**Rating of Landscape Potential** If score is:  4-9 = H  1-3 = M  < 1 = L Record the rating on the first page

<p>H 3.0. Is the habitat provided by the site valuable to society?</p>	
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose the highest score that applies to the wetland being rated</i>                  Site meets ANY of the following criteria: points = 2                  — It has 3 or more priority habitats within 100 m (see Appendix B)                  — It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists)                  — It is mapped as a location for an individual WDFW 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 within 100 m (see Appendix B) points = 1                  Site does not meet any of the criteria above points = 0</p>	0

**Rating of Value** If score is:  2 = H  1 = M  0 = L Record the rating on the first page

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

**Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Vernal pools</b>                      Is the wetland <b>less than 4000 ft<sup>2</sup></b>, and does it meet at least <b>two</b> of the following criteria?                      — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input.                      — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.</i>                      — The soil in the wetland is shallow [<math>&lt; 1</math> ft (30 cm) deep] and is underlain by an impermeable layer such as basalt or clay.                      — Surface water is present for less than 120 days during the wet season.  <input type="radio"/> Yes – Go to <b>SC 1.1</b> <input type="radio"/> No = <b>Not a vernal pool</b></p> <p>SC 1.1. Is the vernal pool relatively undisturbed in February and March?  <input type="radio"/> Yes – Go to <b>SC 1.2</b> <input type="radio"/> No = <b>Not a vernal pool with special characteristics</b></p>	
<p>SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Category III</b></p>	<p><b>Cat. II</b> <b>Cat. III</b></p>
<p><b>SC 2.0. Alkali wetlands</b>                      Does the wetland meet <b>one</b> of the following criteria?                      — The wetland has a conductivity <math>&gt; 3.0</math> mS/cm.                      — The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as “alkali” species (see Table 4 for list of plants found in alkali systems).                      — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt.  <b>OR</b> does the wetland unit meet two of the following three sub-criteria?                      — Salt encrustations around more than 75% of the edge of the wetland                      — More than <math>\frac{3}{4}</math> of the plant cover consists of species listed on Table 4                      — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands.  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not an alkali wetland</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0. Wetlands of High Conservation Value (WHCV)</b>                      SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  <input type="radio"/> Yes – Go to <b>SC 3.2</b> <input type="radio"/> No – Go to <b>SC 3.3</b>                      SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>  <input type="radio"/> Yes – <b>Contact WNHP/WDNR and go to SC 3.4</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b></p>	<p><b>Cat. I</b></p>

<p><b>SC 4.0 Bogs and Calcareous Fens</b>          Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? <i>Use the key below to identify if the wetland is a bog or calcareous fen. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <i>See Appendix C for a field key to identify organic soils.</i>  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No – Go to <b>SC 4.2</b></p> <p>SC 4.2. Does an area within the wetland 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?  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No = <b>Is not a bog for rating</b></p> <p>SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.4</b>  <b>NOTE:</b> 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 5 are present, the wetland is a bog.</p> <p>SC 4.4. Is an area with peats or mucks forested (&gt; 30% cover) with 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 5 provide more than 30% of the cover under the canopy?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.5</b></p> <p>SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks?  <input type="radio"/> Yes = <b>Is a Calcareous Fen for purpose of rating</b> <input type="radio"/> No – Go to <b>SC 4.6</b></p> <p>SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met:          — Marl deposits [calcium carbonate (CaCO<sub>3</sub>) precipitate] occur on the soil surface or plant stems          — The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland  <input type="radio"/> Yes = <b>Is a Category I calcareous fen</b> <input type="radio"/> No = <b>Is not a calcareous fen</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p>
<p><b>SC 5.0. Forested Wetlands</b>          Does the wetland have an area of forest rooted within its boundary that meets <b>at least one</b> of the following three criteria? (<i>Continue only if you have identified that a forested class is present in question H 1.1</i>)</p> <ul style="list-style-type: none"> <li>— The wetland is within the 100 year floodplain of a river or stream</li> <li>— Aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species</li> <li>— There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (<i>see definitions in question H3.1</i>)</li> </ul> <p style="text-align: right;"><input type="radio"/> Yes – Go to <b>SC 5.1</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p> <p>SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.2</b></p> <p>SC 5.2. Does the wetland have areas where aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.3</b></p> <p>SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No – Go to <b>SC 5.4</b></p> <p>SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. II</p> <p style="text-align: center;">Cat. II</p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the highest rating if wetland falls into several categories</i>          If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p style="text-align: center;">NA</p>

# Appendix B: WDFW Priority Habitats in Eastern Washington

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: **NOTE:** *This question is independent of the land use between the wetland 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*).
- **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. 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 and 80-160 years old east 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.
- **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.
- **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 > 12 in (30 cm) in eastern 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.
- **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).
- **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).
- **Juniper Savannah:** All juniper woodlands.

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

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Wetland name or number 12A

## RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): Leavenworth: Region 12 Date of site visit: 4/22/15  
 Rated by J. Dirkse; Grette Associates Trained by Ecology?  Yes \_\_\_ No Date of training 9/05; 4/14  
 HGM Class used for rating Depressional Wetland has multiple HGM classes? \_\_\_ Y  N

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

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

### 1. Category of wetland based on FUNCTIONS

- \_\_\_ Category I – Total score = 22-27
- \_\_\_ Category II – Total score = 19-21
- \_\_\_ Category III – Total score = 16-18
- Category IV – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	
Landscape Potential	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	
Value	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	<b>TOTAL</b>
<b>Score Based on Ratings</b>	5	4	5	14

**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
	<i>Circle the appropriate category</i>
Vernal Pools	II <input type="checkbox"/> III <input type="checkbox"/>
Alkali	I <input type="checkbox"/>
Wetland of High Conservation Value	I <input type="checkbox"/>
Bog and Calcareous Fens	I <input type="checkbox"/>
Old Growth or Mature Forest – slow growing	I <input type="checkbox"/>
Aspen Forest	I <input type="checkbox"/>
Old Growth or Mature Forest – fast growing	II <input type="checkbox"/>
Floodplain forest	II <input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>

**Maps and figures required to answer questions correctly for Eastern Washington  
Depressional Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	5
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	5
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	5
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	5
Map of the contributing basin	D 5.3	6
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	11
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	13
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	D 3.3	14

**Riverine Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
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)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

**Lake Fringe Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	L 3.3	

**Slope Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	S 3.3	



**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 wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

*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.*

<b>DEPRESSIONAL WETLANDS</b>		Points (only 1 score per box)
<b>Water Quality Functions</b> - Indicators that the site functions to improve water quality		
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland:		
Wetland has no surface water outlet	<input type="checkbox"/> points = 5	1
Wetland has an intermittently flowing outlet	<input type="checkbox"/> points = 3	
Wetland has a highly constricted permanently flowing outlet	<input type="checkbox"/> points = 3	
Wetland has a permanently flowing, unconstricted, surface outlet	<input checked="" type="checkbox"/> points = 1	
D 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic ( <i>use NRCS definitions of soils</i> )	<input type="checkbox"/> YES = 3 <input checked="" type="checkbox"/> NO = 0	0
D 1.3. <u>Characteristics of persistent vegetation</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes)		
Wetland has persistent, ungrazed, vegetation for $> \frac{2}{3}$ of area	<input type="checkbox"/> points = 5	3
Wetland has persistent, ungrazed, vegetation from $\frac{1}{3}$ to $\frac{2}{3}$ of area	<input checked="" type="checkbox"/> points = 3	
Wetland has persistent, ungrazed vegetation from $\frac{1}{10}$ to $< \frac{1}{3}$ of area	<input type="checkbox"/> points = 1	
Wetland has persistent, ungrazed vegetation $< \frac{1}{10}$ of area	<input type="checkbox"/> points = 0	
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.</i>		
Area seasonally ponded is $> \frac{1}{2}$ total area of wetland	<input type="checkbox"/> points = 3	0
Area seasonally ponded is $\frac{1}{4}$ - $\frac{1}{2}$ total area of wetland	<input type="checkbox"/> points = 1	
Area seasonally ponded is $< \frac{1}{4}$ total area of wetland	<input checked="" type="checkbox"/> points = 0	
Total for D 1	Add the points in the boxes above	4

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

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

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

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where water quality is an issue in some aquatic resource [303(d) list, eutrophic lakes, problems with nuisance and toxic algae]?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality ( <i>answer YES if there is a TMDL for the drainage or basin in which the wetland is found</i> )?	Yes = 2 No = 0	2
Total for D 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*

**DEPRESSIONAL WETLANDS**

Points  
(only 1 score  
per box)

**Hydrologic Functions** - Indicators that the site functions to reduce flooding and erosion.

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

- Wetland has no surface water outlet  points = 8
  - Wetland has an intermittently flowing outlet  points = 4
  - Wetland has a highly constricted permanently flowing outlet  points = 4
  - Wetland has a permanently flowing unconfined surface outlet  points = 0
- (If outlet is a ditch and not permanently flowing treat wetland as "intermittently flowing")*

0

D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or deepest part (if dry).

- Seasonal ponding: > 3 ft above the lowest point in wetland or the surface of permanent ponding  points = 8
- Seasonal ponding: 2 ft - < 3 ft above the lowest point in wetland or the surface of permanent ponding  points = 6
- The wetland is a headwater wetland  points = 4
- Seasonal ponding: 1 ft - < 2 ft  points = 4
- Seasonal ponding: 6 in - < 1 ft  points = 2
- Seasonal ponding: < 6 in or wetland has only saturated soils  points = 0

2

Total for D 4

Add the points in the boxes above

2

**Rating of Site Potential** If score is:  12-16 = H  6-11 = M  0-5 = L

Record the rating on the first page

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

D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0

0

D 5.2. Is > 10% of the area within 150 ft of the wetland in a land use that generates runoff? Yes = 1 No = 0

0

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses? Yes = 1 No = 0

0

Total for D 5

Add the points in the boxes above

0

**Rating of Landscape Potential** If score is:  3 = H  1 or 2 = M  0 = L

Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The wetland is in a landscape that has flooding problems.

Choose the description that best matches conditions around the wetland being rated. Do not add points. Choose the highest score if more than one condition is met.

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds), AND

- Flooding occurs in sub-basin that is immediately down-gradient of wetland  points = 2
- Surface flooding problems are in a sub-basin farther down-gradient  points = 1

1

The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood.

Explain why \_\_\_\_\_  points = 0

There are no problems with flooding downstream of the wetland  points = 0

D 6.2. Has the site has been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0

0

Total for D 6

Add the points in the boxes above

1

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

Record the rating on the first page



<b>H 1.6. Special habitat features</b> <i>Check the habitat features that are present in the wetland. The number of checks is the number of points.</i> <input checked="" type="checkbox"/> Loose rocks larger than 4 in OR large, downed, woody debris (> 4 in diameter) within the area of surface ponding or in stream. <input type="checkbox"/> Cattails or bulrushes are present within the wetland. <input checked="" type="checkbox"/> Standing snags (diameter at the bottom > 4 in) in the wetland or within 30 m (100 ft) of the edge. <input type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded. <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 45 degree slope) OR signs of recent beaver activity <input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation ( <i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i> )		2
Total for H 1		6

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L Record the rating on the first page

<b>H 2.0. Does the landscape have the potential to support habitat functions of the site?</b>		
<b>H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is:</b> <i>Calculate: % undisturbed habitat <u>54</u> + [(% moderate and low intensity land uses)/2] <u>3</u> = <u>57</u> %</i> > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1km Polygon points = 2 10-19% of 1km Polygon points = 1 <10% of 1km Polygon points = 0		3
<b>H 2.2. Undisturbed habitat in 1 km Polygon around wetland.</b> <i>Calculate: % undisturbed habitat <u>55</u> + [(% moderate and low intensity land uses)/2] <u>7</u> = <u>62</u> %</i> 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 Polygon points = 0		3
<b>H 2.3. Land use intensity in 1 km Polygon:</b> > 50% of Polygon is high intensity land use points = (- 2) Does not meet criterion above points = 0		0
<b>H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs</b> Yes = 3 No = 0		0
Total for H 2		6

**Rating of Landscape Potential** If score is:  4-9 = H  1-3 = M  < 1 = L Record the rating on the first page

<b>H 3.0. Is the habitat provided by the site valuable to society?</b>		
<b>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose the highest score that applies to the wetland being rated</b> Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see Appendix B) — It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists) — It is mapped as a location for an individual WDFW 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 within 100 m (see Appendix B) points = 1 Site does not meet any of the criteria above points = 0		0

**Rating of Value** If score is:  2 = H  1 = M  0 = L Record the rating on the first page

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

**Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.**

Wetland Type <i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	Category
<p><b>SC 1.0. Vernal pools</b> Is the wetland <b>less than 4000 ft<sup>2</sup></b>, and does it meet at least <b>two</b> of the following criteria?  — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input.  — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.</i>  — The soil in the wetland is shallow [<math>&lt; 1</math> ft (30 cm) deep] and is underlain by an impermeable layer such as basalt or clay.  — Surface water is present for less than 120 days during the wet season.  <input type="radio"/> Yes – Go to <b>SC 1.1</b> <input type="radio"/> No = <b>Not a vernal pool</b></p> <p>SC 1.1. Is the vernal pool relatively undisturbed in February and March?  <input type="radio"/> Yes – Go to <b>SC 1.2</b> <input type="radio"/> No = <b>Not a vernal pool with special characteristics</b></p>	
<p>SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Category III</b></p>	<p><b>Cat. II</b> <b>Cat. III</b></p>
<p><b>SC 2.0. Alkali wetlands</b> Does the wetland meet <b>one</b> of the following criteria?  — The wetland has a conductivity <math>&gt; 3.0</math> mS/cm.  — The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as “alkali” species (see Table 4 for list of plants found in alkali systems).  — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt.  <b>OR</b> does the wetland unit meet two of the following three sub-criteria?  — Salt encrustations around more than 75% of the edge of the wetland  — More than <math>\frac{3}{4}</math> of the plant cover consists of species listed on Table 4  — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands.  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not an alkali wetland</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0. Wetlands of High Conservation Value (WHCV)</b>  SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  <input type="radio"/> Yes – Go to <b>SC 3.2</b> <input type="radio"/> No – Go to <b>SC 3.3</b>  SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b>  SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>  <input type="radio"/> Yes – <b>Contact WNHP/WDNR and go to SC 3.4</b> <input type="radio"/> No = <b>Not a WHCV</b>  SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b></p>	<p><b>Cat. I</b></p>

<p><b>SC 4.0 Bogs and Calcareous Fens</b>          Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? <i>Use the key below to identify if the wetland is a bog or calcareous fen. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <i>See Appendix C for a field key to identify organic soils.</i>  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No – Go to <b>SC 4.2</b></p> <p>SC 4.2. Does an area within the wetland 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?  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No = <b>Is not a bog for rating</b></p> <p>SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.4</b>  <b>NOTE:</b> 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 5 are present, the wetland is a bog.</p> <p>SC 4.4. Is an area with peats or mucks forested (&gt; 30% cover) with 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 5 provide more than 30% of the cover under the canopy?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.5</b></p> <p>SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks?  <input type="radio"/> Yes = <b>Is a Calcareous Fen for purpose of rating</b> <input type="radio"/> No – Go to <b>SC 4.6</b></p> <p>SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met:  <input type="checkbox"/> Marl deposits [calcium carbonate (CaCO<sub>3</sub>) precipitate] occur on the soil surface or plant stems  <input type="checkbox"/> The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland  <input type="radio"/> Yes = <b>Is a Category I calcareous fen</b> <input type="radio"/> No = <b>Is not a calcareous fen</b></p>	<p>Cat. I</p> <p>Cat. I</p>
<p><b>SC 5.0. Forested Wetlands</b>          Does the wetland have an area of forest rooted within its boundary that meets <b>at least one</b> of the following three criteria? (<i>Continue only if you have identified that a forested class is present in question H 1.1</i>)</p> <ul style="list-style-type: none"> <li>— The wetland is within the 100 year floodplain of a river or stream</li> <li>— Aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species</li> <li>— There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (<i>see definitions in question H3.1</i>)</li> </ul> <p><input type="radio"/> Yes – Go to <b>SC 5.1</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p> <p>SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.2</b></p> <p>SC 5.2. Does the wetland have areas where aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.3</b></p> <p>SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No – Go to <b>SC 5.4</b></p> <p>SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p>	<p>Cat. I</p> <p>Cat. I</p> <p>Cat. II</p> <p>Cat. II</p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the highest rating if wetland falls into several categories</i>          If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p>NA</p>

# Appendix B: WDFW Priority Habitats in Eastern Washington

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: **NOTE:** *This question is independent of the land use between the wetland 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*).
- **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. 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 and 80-160 years old east 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.
- **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.
- **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 > 12 in (30 cm) in eastern 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.
- **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).
- **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).
- **Juniper Savannah:** All juniper woodlands.

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

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Wetland name or number 12B

## RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): Leavenworth: Region 12 Date of site visit: 5/13/15  
 Rated by J. Dirkse; Grette Associates Trained by Ecology?  Yes  No Date of training 9/05; 4/14  
 HGM Class used for rating Depressional Wetland has multiple HGM classes?  Y  N

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

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

### 1. Category of wetland based on FUNCTIONS

- Category I – Total score = 22-27
- Category II – Total score = 19-21
- Category III – Total score = 16-18
- Category IV – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	
Landscape Potential	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	
Value	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L <input type="checkbox"/>	H <input type="checkbox"/> M <input type="checkbox"/> L <input checked="" type="checkbox"/>	<b>TOTAL</b>
<b>Score Based on Ratings</b>	6	5	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
	<i>Circle the appropriate category</i>
Vernal Pools	II <input type="checkbox"/> III <input type="checkbox"/>
Alkali	I <input type="checkbox"/>
Wetland of High Conservation Value	I <input type="checkbox"/>
Bog and Calcareous Fens	I <input type="checkbox"/>
Old Growth or Mature Forest – slow growing	I <input type="checkbox"/>
Aspen Forest	I <input type="checkbox"/>
Old Growth or Mature Forest – fast growing	II <input type="checkbox"/>
Floodplain forest	II <input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>

## Maps and figures required to answer questions correctly for Eastern Washington Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	5
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	5
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	5
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	5
Map of the contributing basin	D 5.3	6
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	12
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	13
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	D 3.3	14

## Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
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)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

## Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	L 3.3	

## Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	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 wetland is found (website)	S 3.3	

## HGM Classification of Wetland in Eastern Washington

For questions 1-4, 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 1-4 apply, and go to Question 5.

1. Does the entire unit **meet both** of the following criteria?  
\_\_\_ The vegetated part of the wetland is on the water side of the Ordinary High Water Mark of a body of permanent open water (without any plants on the surface) that is at least 20 ac (8 ha) in size  
\_\_\_ At least 30% of the open water area is deeper than 10 ft (3 m)  
 NO - go to 2  YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)
2. 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 3  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 foot deep).
3. 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 10 years.  
 NO - go to 4  YES - The wetland class is **Riverine**  
**NOTE:** The Riverine wetland can contain depressions that are filled with water when the river is not flooding.
4. 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 5  YES - The wetland class is **Depressional**
5. 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 1-4 APPLY TO DIFFERENT AREAS IN THE WETLAND 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 wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

*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.*

<b>DEPRESSIONAL WETLANDS</b>		Points (only 1 score per box)
<b>Water Quality Functions</b> - Indicators that the site functions to improve water quality		
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland:		
Wetland has no surface water outlet	<input type="checkbox"/> points = 5	3
Wetland has an intermittently flowing outlet	<input checked="" type="checkbox"/> points = 3	
Wetland has a highly constricted permanently flowing outlet	<input type="checkbox"/> points = 3	
Wetland has a permanently flowing, unconstricted, surface outlet	<input type="checkbox"/> points = 1	
D 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic ( <i>use NRCS definitions of soils</i> )	<input type="checkbox"/> YES = 3 <input checked="" type="checkbox"/> NO = 0	0
D 1.3. <u>Characteristics of persistent vegetation</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes)		
Wetland has persistent, ungrazed, vegetation for $> \frac{2}{3}$ of area	<input type="checkbox"/> points = 5	1
Wetland has persistent, ungrazed, vegetation from $\frac{1}{3}$ to $\frac{2}{3}$ of area	<input type="checkbox"/> points = 3	
Wetland has persistent, ungrazed vegetation from $\frac{1}{10}$ to $< \frac{1}{3}$ of area	<input checked="" type="checkbox"/> points = 1	
Wetland has persistent, ungrazed vegetation $< \frac{1}{10}$ of area	<input type="checkbox"/> points = 0	
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.</i>		
Area seasonally ponded is $> \frac{1}{2}$ total area of wetland	<input type="checkbox"/> points = 3	0
Area seasonally ponded is $\frac{1}{4}$ - $\frac{1}{2}$ total area of wetland	<input type="checkbox"/> points = 1	
Area seasonally ponded is $< \frac{1}{4}$ total area of wetland	<input checked="" type="checkbox"/> points = 0	
Total for D 1	Add the points in the boxes above	4

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

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

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

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where water quality is an issue in some aquatic resource [303(d) list, eutrophic lakes, problems with nuisance and toxic algae]?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality ( <i>answer YES if there is a TMDL for the drainage or basin in which the wetland is found</i> )?	Yes = 2 No = 0	2
Total for D 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*

**DEPRESSIONAL WETLANDS**

Points  
(only 1 score  
per box)

**Hydrologic Functions** - Indicators that the site functions to reduce flooding and erosion.

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

- Wetland has no surface water outlet  points = 8
  - Wetland has an intermittently flowing outlet  points = 4
  - Wetland has a highly constricted permanently flowing outlet  points = 4
  - Wetland has a permanently flowing unconfined surface outlet  points = 0
- (If outlet is a ditch and not permanently flowing treat wetland as "intermittently flowing")*

4

D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or deepest part (if dry).

- Seasonal ponding: > 3 ft above the lowest point in wetland or the surface of permanent ponding  points = 8
- Seasonal ponding: 2 ft - < 3 ft above the lowest point in wetland or the surface of permanent ponding  points = 6
- The wetland is a headwater wetland  points = 4
- Seasonal ponding: 1 ft - < 2 ft  points = 4
- Seasonal ponding: 6 in - < 1 ft  points = 2
- Seasonal ponding: < 6 in or wetland has only saturated soils  points = 0

4

Total for D 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

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

D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0

0

D 5.2. Is > 10% of the area within 150 ft of the wetland in a land use that generates runoff? Yes = 1 No = 0

0

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses? Yes = 1 No = 0

0

Total for D 5

Add the points in the boxes above

0

**Rating of Landscape Potential** If score is:  3 = H  1 or 2 = M  0 = L

Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The wetland is in a landscape that has flooding problems.

Choose the description that best matches conditions around the wetland being rated. Do not add points. Choose the highest score if more than one condition is met.

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds), AND

- Flooding occurs in sub-basin that is immediately down-gradient of wetland  points = 2
- Surface flooding problems are in a sub-basin farther down-gradient  points = 1

1

The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood.

Explain why \_\_\_\_\_  points = 0

There are no problems with flooding downstream of the wetland  points = 0

D 6.2. Has the site has been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0

0

Total for D 6

Add the points in the boxes above

1

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

Record the rating on the first page



<b>H 1.6. Special habitat features</b> <i>Check the habitat features that are present in the wetland. The number of checks is the number of points.</i> <input checked="" type="checkbox"/> Loose rocks larger than 4 in OR large, downed, woody debris (> 4 in diameter) within the area of surface ponding or in stream. <input checked="" type="checkbox"/> Cattails or bulrushes are present within the wetland. <input checked="" type="checkbox"/> Standing snags (diameter at the bottom > 4 in) in the wetland or within 30 m (100 ft) of the edge. <input checked="" type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded. <input checked="" type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 45 degree slope) OR signs of recent beaver activity <input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation ( <i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i> )		5
Total for H 1	Add the points in the boxes above	17

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L Record the rating on the first page

<b>H 2.0. Does the landscape have the potential to support habitat functions of the site?</b>		
<b>H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is:</b> <i>Calculate: % undisturbed habitat <u>53</u> + [(% moderate and low intensity land uses)/2] <u>3</u> = <u>56</u> %</i> > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1km Polygon points = 2 10-19% of 1km Polygon points = 1 <10% of 1km Polygon points = 0		3
<b>H 2.2. Undisturbed habitat in 1 km Polygon around wetland.</b> <i>Calculate: % undisturbed habitat <u>55</u> + [(% moderate and low intensity land uses)/2] <u>7</u> = <u>62</u> %</i> 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 Polygon points = 0		3
<b>H 2.3. Land use intensity in 1 km Polygon:</b> > 50% of Polygon is high intensity land use points = (- 2) Does not meet criterion above points = 0		0
<b>H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs</b> Yes = 3 No = 0		0
Total for H 2	Add the points in the boxes above	6

**Rating of Landscape Potential** If score is:  4-9 = H  1-3 = M  < 1 = L Record the rating on the first page

<b>H 3.0. Is the habitat provided by the site valuable to society?</b>		
<b>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose the highest score that applies to the wetland being rated</b> Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see Appendix B) — It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists) — It is mapped as a location for an individual WDFW 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 within 100 m (see Appendix B) points = 1 Site does not meet any of the criteria above points = 0		0

**Rating of Value** If score is:  2 = H  1 = M  0 = L Record the rating on the first page

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

**Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Vernal pools</b>                      Is the wetland <b>less than 4000 ft<sup>2</sup></b>, and does it meet at least <b>two</b> of the following criteria?                      — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input.                      — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.</i>                      — The soil in the wetland is shallow [<math>&lt; 1</math> ft (30 cm) deep] and is underlain by an impermeable layer such as basalt or clay.                      — Surface water is present for less than 120 days during the wet season.  <input type="radio"/> Yes – Go to <b>SC 1.1</b> <input type="radio"/> No = <b>Not a vernal pool</b></p> <p>SC 1.1. Is the vernal pool relatively undisturbed in February and March?  <input type="radio"/> Yes – Go to <b>SC 1.2</b> <input type="radio"/> No = <b>Not a vernal pool with special characteristics</b></p>	
<p>SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Category III</b></p>	<p><b>Cat. II</b> <b>Cat. III</b></p>
<p><b>SC 2.0. Alkali wetlands</b>                      Does the wetland meet <b>one</b> of the following criteria?                      — The wetland has a conductivity <math>&gt; 3.0</math> mS/cm.                      — The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as “alkali” species (see Table 4 for list of plants found in alkali systems).                      — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt.  <b>OR</b> does the wetland unit meet two of the following three sub-criteria?                      — Salt encrustations around more than 75% of the edge of the wetland                      — More than <math>\frac{3}{4}</math> of the plant cover consists of species listed on Table 4                      — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands.  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not an alkali wetland</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0. Wetlands of High Conservation Value (WHCV)</b>                      SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  <input type="radio"/> Yes – Go to <b>SC 3.2</b> <input type="radio"/> No – Go to <b>SC 3.3</b>                      SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>  <input type="radio"/> Yes – <b>Contact WNHP/WDNR and go to SC 3.4</b> <input type="radio"/> No = <b>Not a WHCV</b>                      SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No = <b>Not a WHCV</b></p>	<p><b>Cat. I</b></p>

<p><b>SC 4.0 Bogs and Calcareous Fens</b>          Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? <i>Use the key below to identify if the wetland is a bog or calcareous fen. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <i>See Appendix C for a field key to identify organic soils.</i>  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No – Go to <b>SC 4.2</b></p> <p>SC 4.2. Does an area within the wetland 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?  <input type="radio"/> Yes – Go to <b>SC 4.3</b> <input type="radio"/> No = <b>Is not a bog for rating</b></p> <p>SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.4</b>  <b>NOTE:</b> 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 5 are present, the wetland is a bog.</p> <p>SC 4.4. Is an area with peats or mucks forested (&gt; 30% cover) with 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 5 provide more than 30% of the cover under the canopy?  <input type="radio"/> Yes = <b>Category I bog</b> <input type="radio"/> No – Go to <b>SC 4.5</b></p> <p>SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks?  <input type="radio"/> Yes = <b>Is a Calcareous Fen for purpose of rating</b> <input type="radio"/> No – Go to <b>SC 4.6</b></p> <p>SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met:  <input type="checkbox"/> Marl deposits [calcium carbonate (CaCO<sub>3</sub>) precipitate] occur on the soil surface or plant stems  <input type="checkbox"/> The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland  <input type="radio"/> Yes = <b>Is a Category I calcareous fen</b> <input type="radio"/> No = <b>Is not a calcareous fen</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p>
<p><b>SC 5.0. Forested Wetlands</b>          Does the wetland have an area of forest rooted within its boundary that meets <b>at least one</b> of the following three criteria? (<i>Continue only if you have identified that a forested class is present in question H 1.1</i>)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> The wetland is within the 100 year floodplain of a river or stream</li> <li><input type="checkbox"/> Aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species</li> <li><input type="checkbox"/> There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (<i>see definitions in question H3.1</i>)</li> </ul> <p style="text-align: right;"><input type="radio"/> Yes – Go to <b>SC 5.1</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p> <p>SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.2</b></p> <p>SC 5.2. Does the wetland have areas where aspen (<i>Populus tremuloides</i>) represents at least 20% of the total cover of woody species?  <input type="radio"/> Yes = <b>Category I</b> <input type="radio"/> No – Go to <b>SC 5.3</b></p> <p>SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (<i>see Table 7</i>)?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No – Go to <b>SC 5.4</b></p> <p>SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream?  <input type="radio"/> Yes = <b>Category II</b> <input type="radio"/> No = <b>Not a forested wetland with special characteristics</b></p>	<p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. I</p> <p style="text-align: center;">Cat. II</p> <p style="text-align: center;">Cat. II</p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the highest rating if wetland falls into several categories</i>          If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p style="text-align: center;">NA</p>

# Appendix B: WDFW Priority Habitats in Eastern Washington

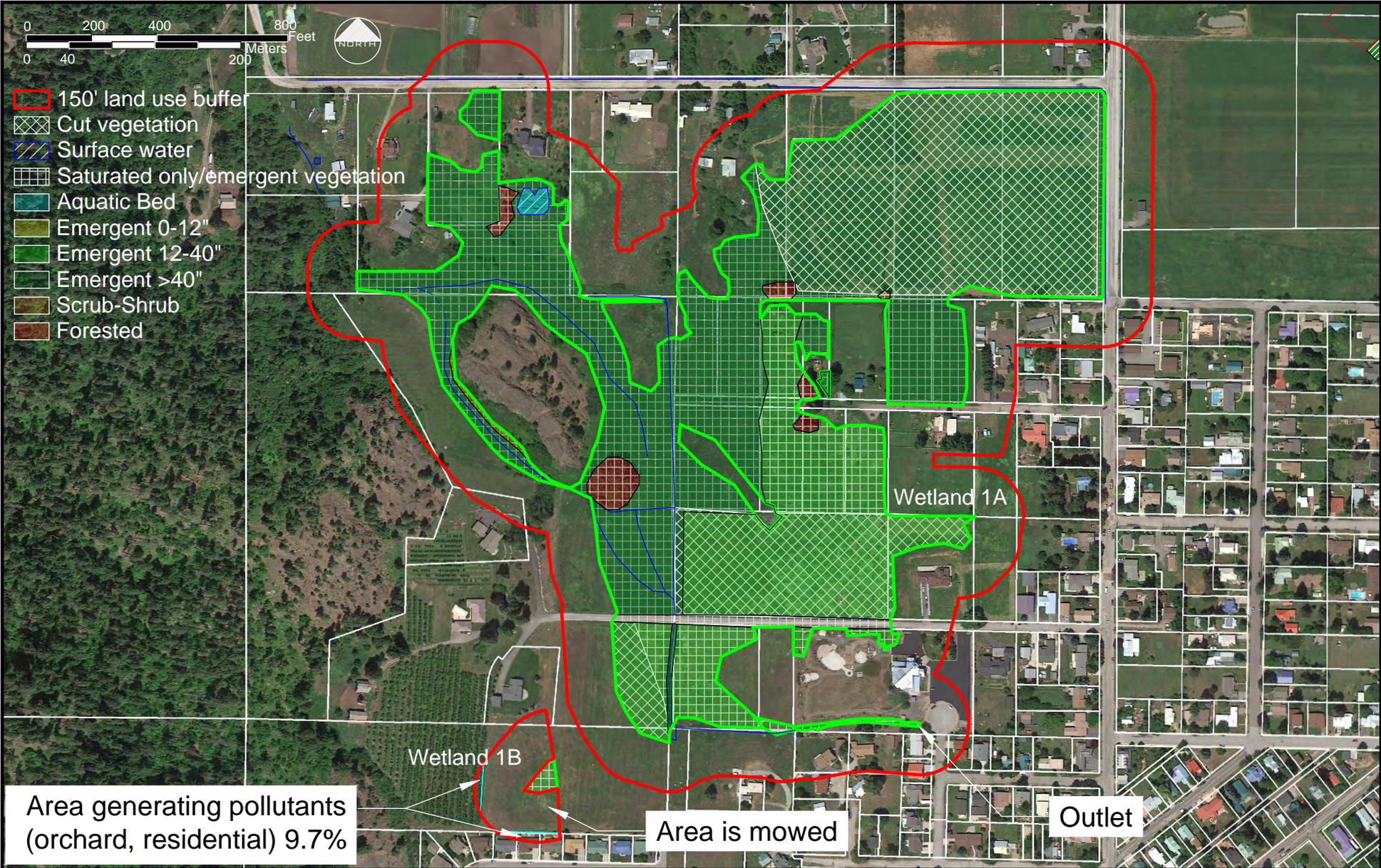
Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> 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: **NOTE:** *This question is independent of the land use between the wetland 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*).
- **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. 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 and 80-160 years old east 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.
- **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.
- **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 > 12 in (30 cm) in eastern 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.
- **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).
- **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).
- **Juniper Savannah:** All juniper woodlands.

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

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VEGETATION CLASSES, HYDROPERIODS, 150' BUFFER  
WETLAND 1A, 1B

CITY OF LEAVENWORTH WETLANDS  
RATING FORM FIGURES

AT: LEAVENWORTH/SKI HILL  
LEAVENWORTH, WA 98826

COUNTY OF: CHELAN  
STATE: WA

SHEET NO. 1 OF 14 DATE: 6/29/16



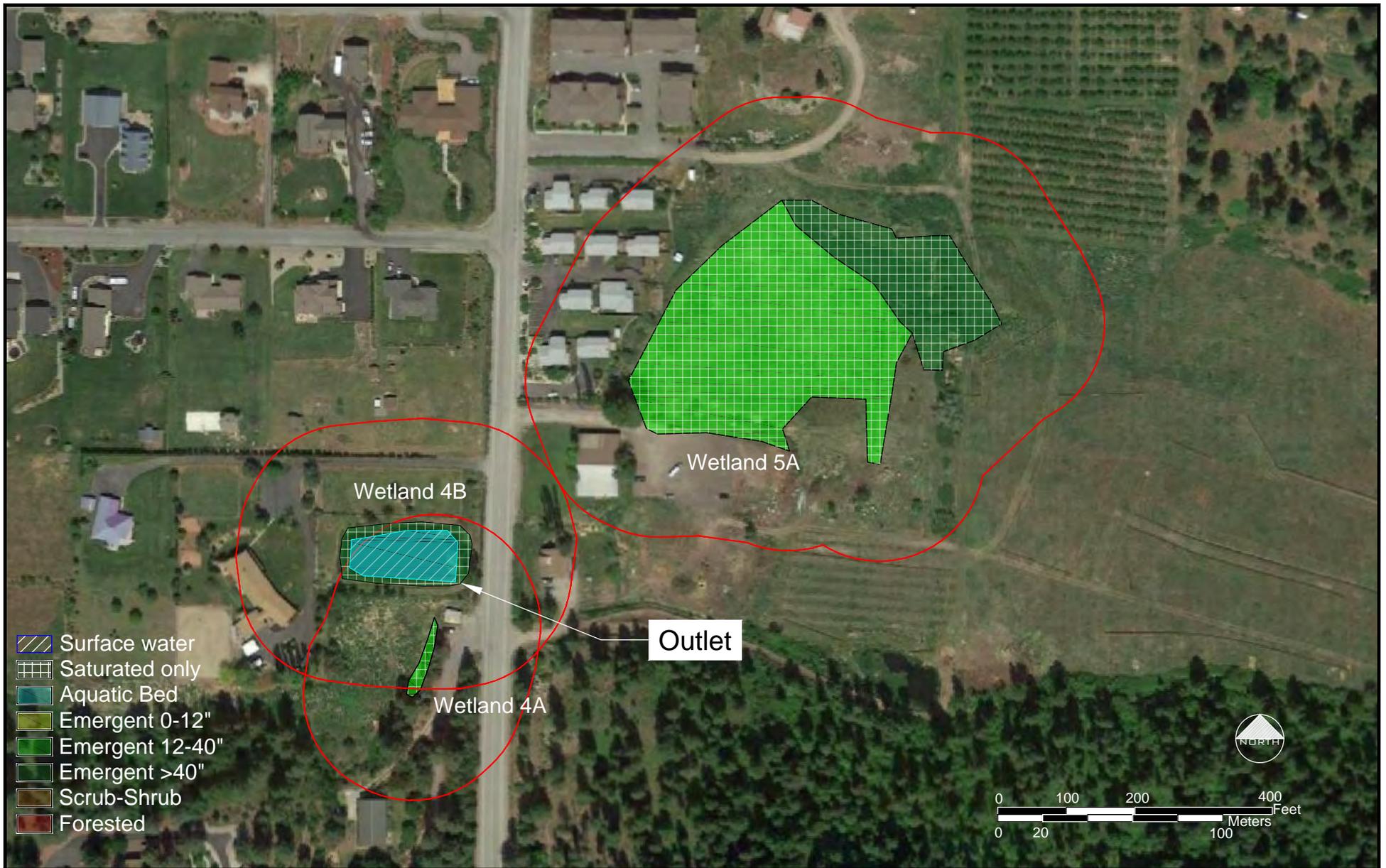
VEGETATION CLASSES, HYDROPERIODS, 150' BUFFER  
WETLANDS 3A, 3B, 3C, CSD DITCH

CITY OF LEAVENWORTH WETLANDS  
RATING FORM FIGURES

AT: LEAVENWORTH/SKI HILL  
LEAVENWORTH, WA 98826

COUNTY OF: CHELAN  
STATE: WA

SHEET NO. 2 OF 14 DATE: 6/29/16



-  Surface water
-  Saturated only
-  Aquatic Bed
-  Emergent 0-12"
-  Emergent 12-40"
-  Emergent >40"
-  Scrub-Shrub
-  Forested

VEGETATION CLASSES, HYDROPERIODS, 150' BUFFER  
WETLANDS 4A, 4B, 5A

CITY OF LEAVENWORTH WETLANDS  
RATING FORM FIGURES

AT: LEAVENWORTH/SKI HILL  
LEAVENWORTH, WA 98826

COUNTY OF: CHELAN  
STATE: WA

SHEET NO. 3 OF 14 DATE: 6/29/16

-  Surface water
-  Saturated only
-  Aquatic Bed
-  Emergent 0-12"
-  Emergent 12-40"
-  Emergent >40"
-  Scrub-Shrub
-  Forested



VEGETATION CLASSES, HYDROPERIODS, 150' BUFFER  
WETLAND 6A

CITY OF LEAVENWORTH WETLANDS  
RATING FORM FIGURES

AT: LEAVENWORTH/SKI HILL  
LEAVENWORTH, WA 98826

COUNTY OF: CHELAN  
STATE: WA

SHEET NO. 4 OF 14 DATE: 6/29/16

-  Surface water
-  Saturated only
-  Aquatic Bed
-  Emergent 0-12"
-  Emergent 12-40"
-  Emergent >40"
-  Scrub-Shrub
-  Forested

Wetland 12A

Downslope of Wetland 12A; does not contribute pollutants or runoff

Outlet

Downslope of Wetland 12B; does not contribute pollutants or runoff

Wetland 12B

Outlet



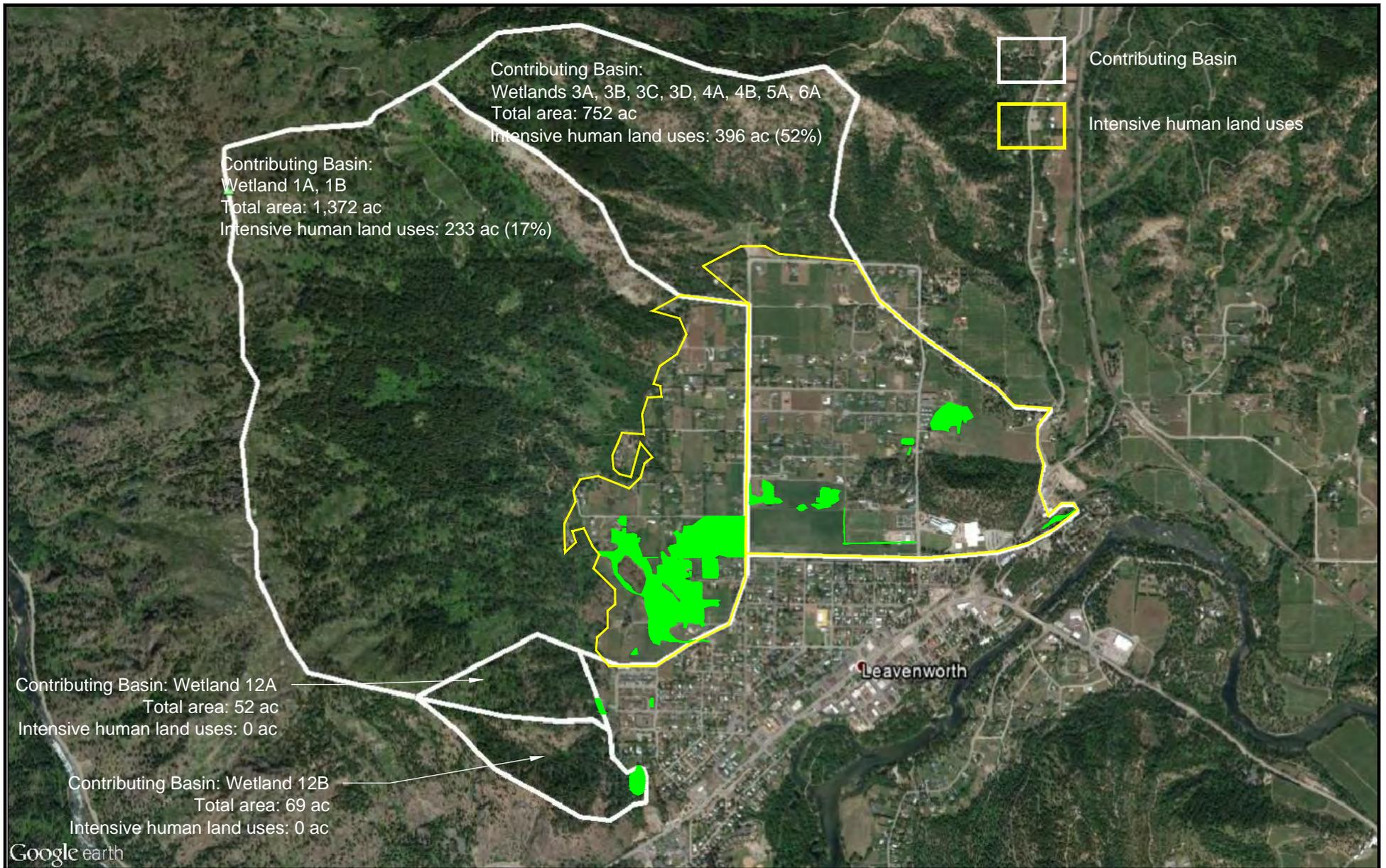
VEGETATION CLASSES, HYDROPERIODS, 150' BUFFER  
WETLANDS 12A, 12B

CITY OF LEAVENWORTH WETLANDS  
RATING FORM FIGURES

AT: LEAVENWORTH/SKI HILL  
LEAVENWORTH, WA 98826

COUNTY OF: CHELAN  
STATE: WA

SHEET NO. 5 OF 14 DATE: 6/29/16



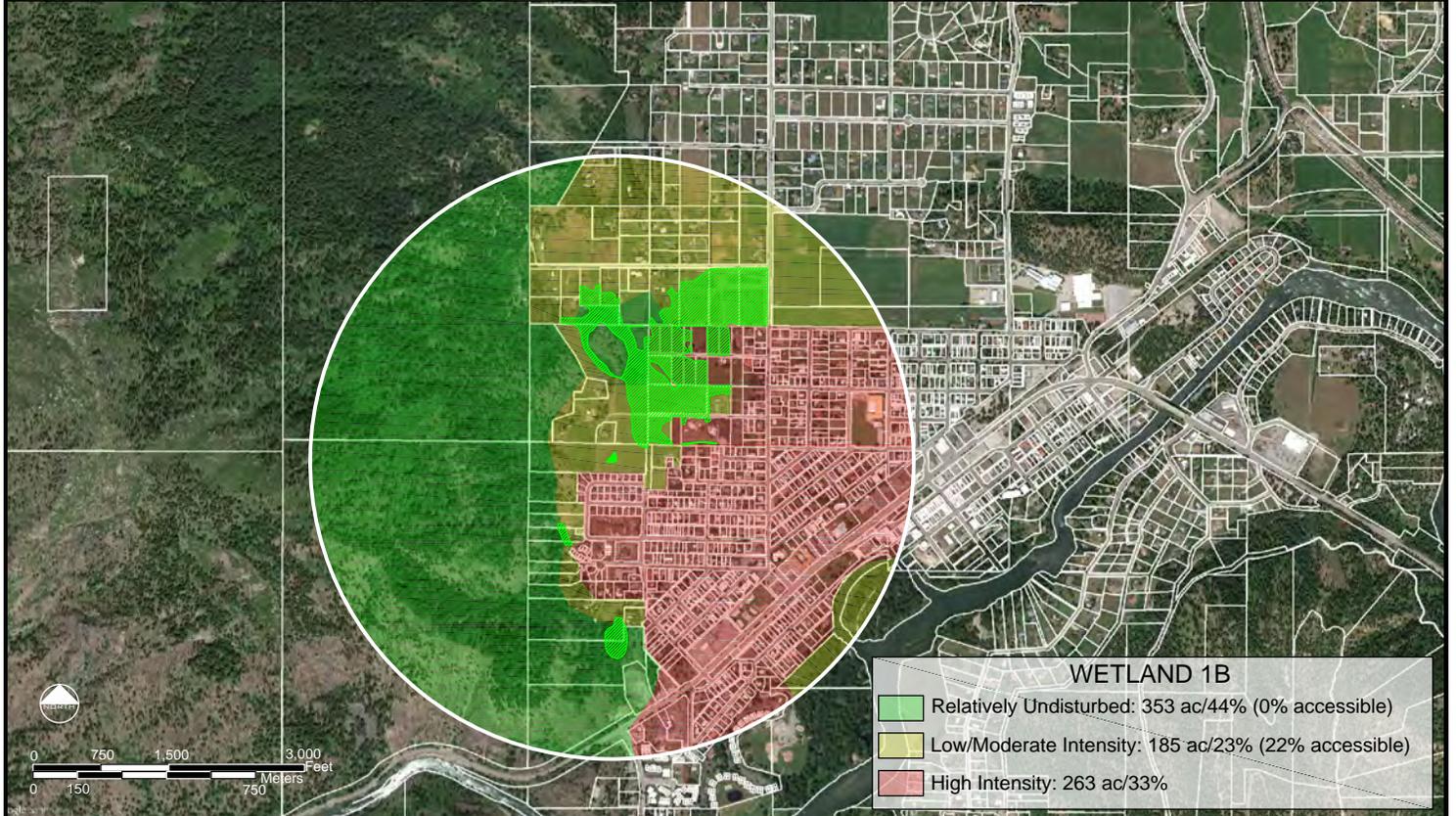
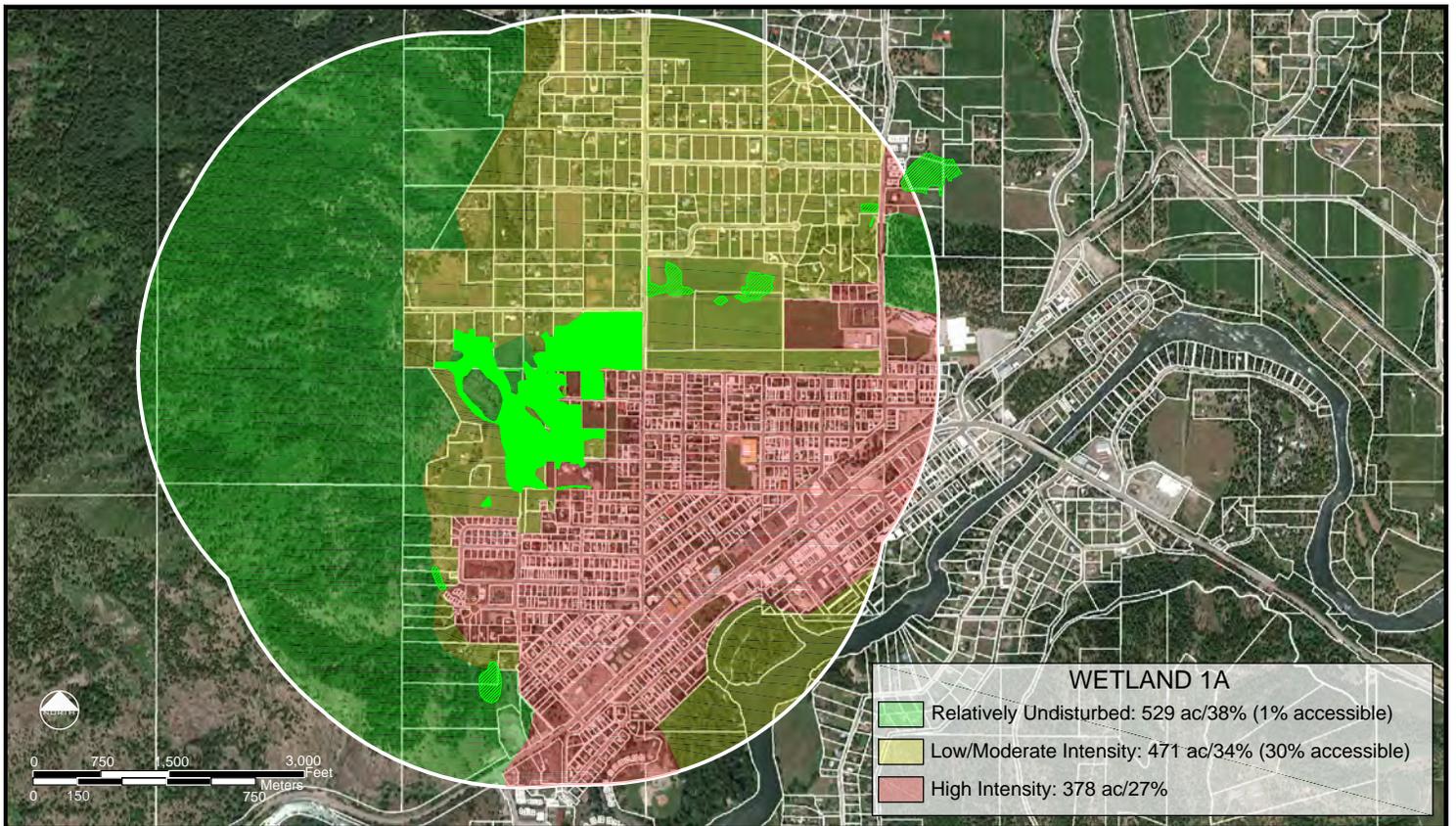
## CONTRIBUTING BASIN

### CITY OF LEAVENWORTH WETLANDS RATING FORM FIGURES

AT: LEAVENWORTH/SKI HILL  
LEAVENWORTH, WA 98826

COUNTY OF: CHELAN  
STATE: WA

SHEET NO. 6 OF 14 DATE: 6/29/16



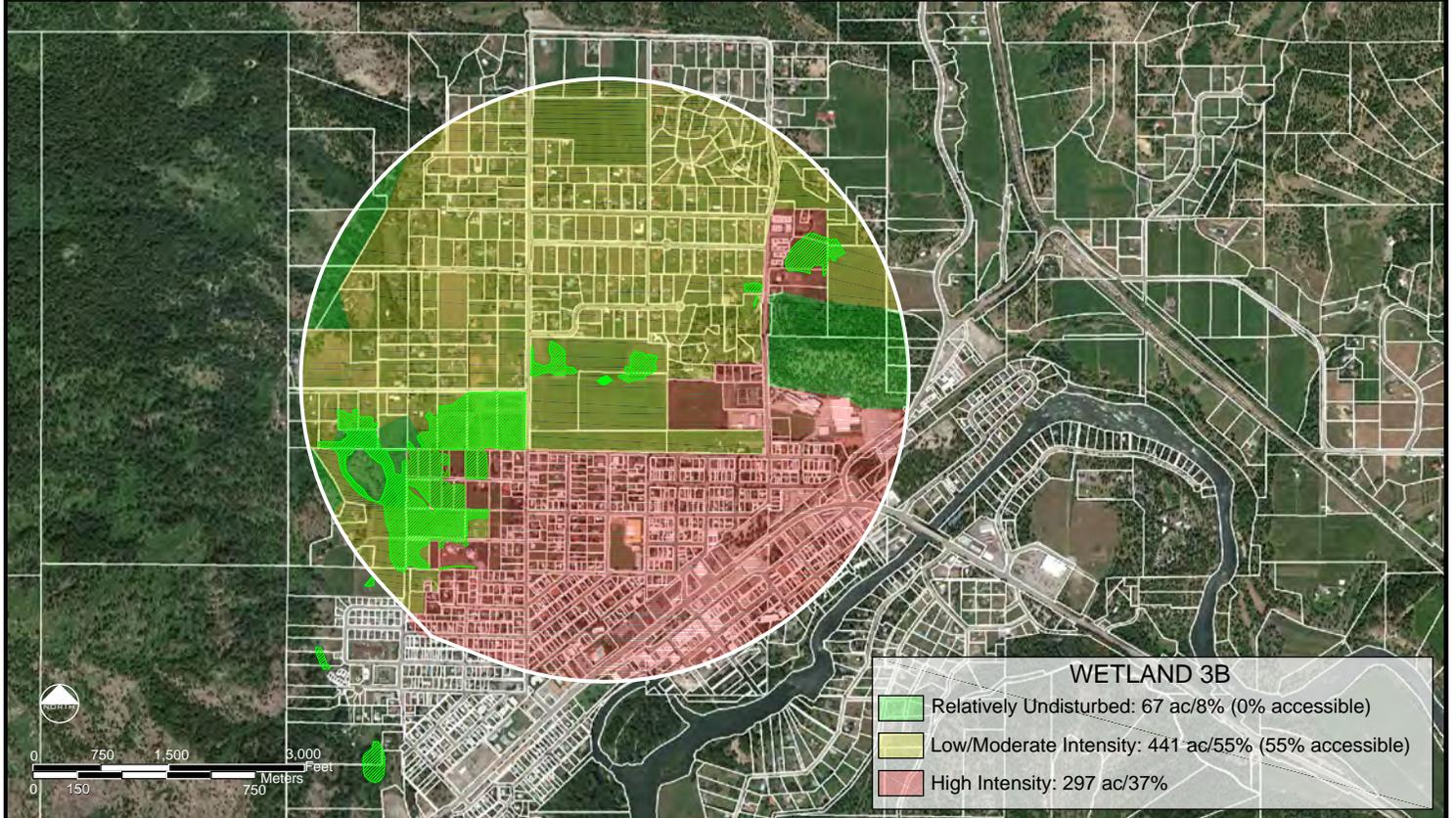
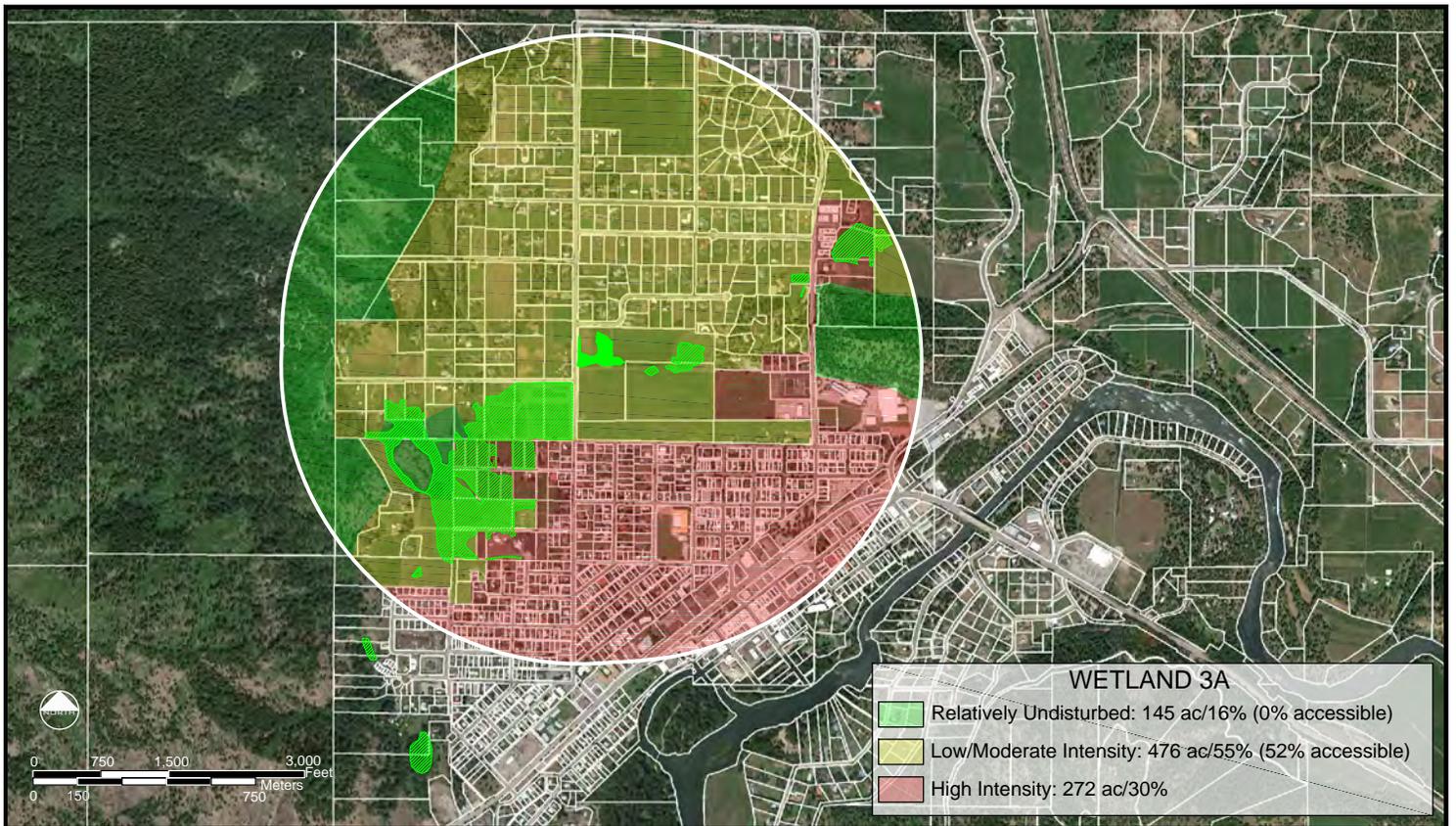
**LAND USE INTENSITY  
WETLAND 1A, 1B**

**CITY OF LEAVENWORTH WETLANDS  
RATING FORM FIGURES**

AT: LEAVENWORTH/SKI HILL  
LEAVENWORTH, WA 98826

COUNTY OF: CHELAN  
STATE: WA

SHEET NO. 7 OF 14 DATE: 6/29/16



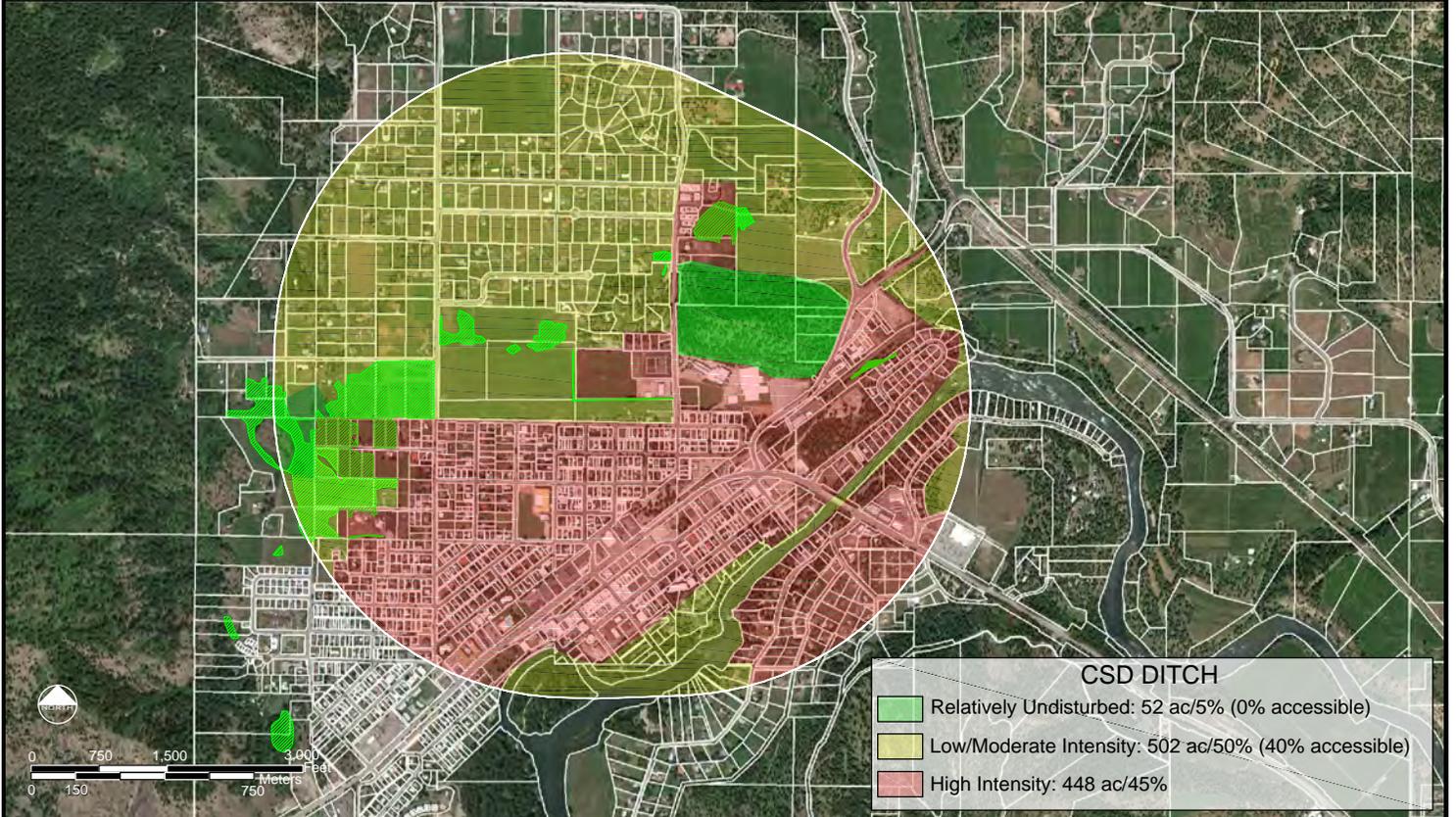
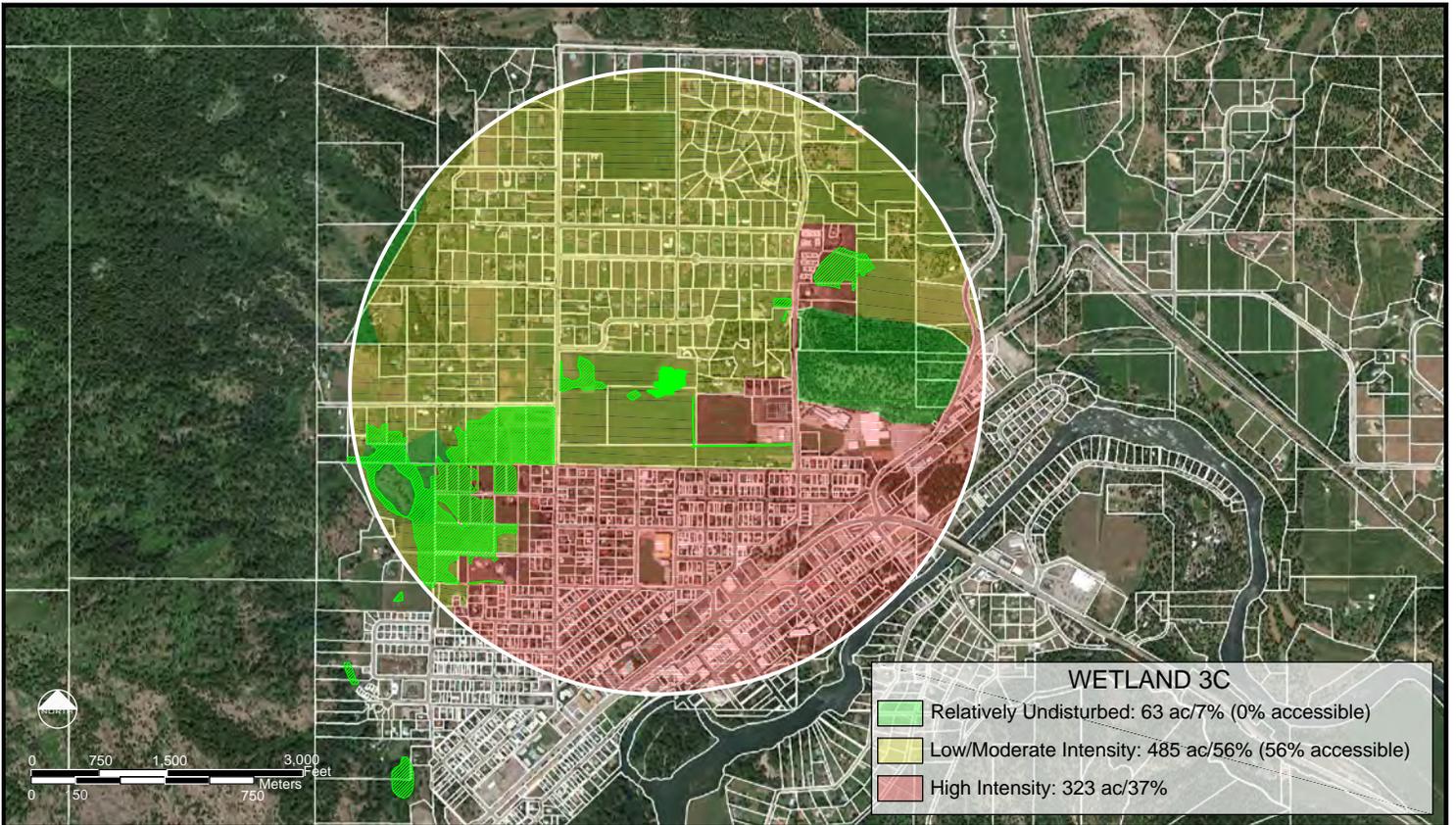
**LAND USE INTENSITY  
WETLAND 3A, 3B**

**CITY OF LEAVENWORTH WETLANDS  
RATING FORM FIGURES**

AT: LEAVENWORTH/SKI HILL  
LEAVENWORTH, WA 98826

COUNTY OF: CHELAN  
STATE: WA

SHEET NO. 8 OF 14 DATE: 6/29/16



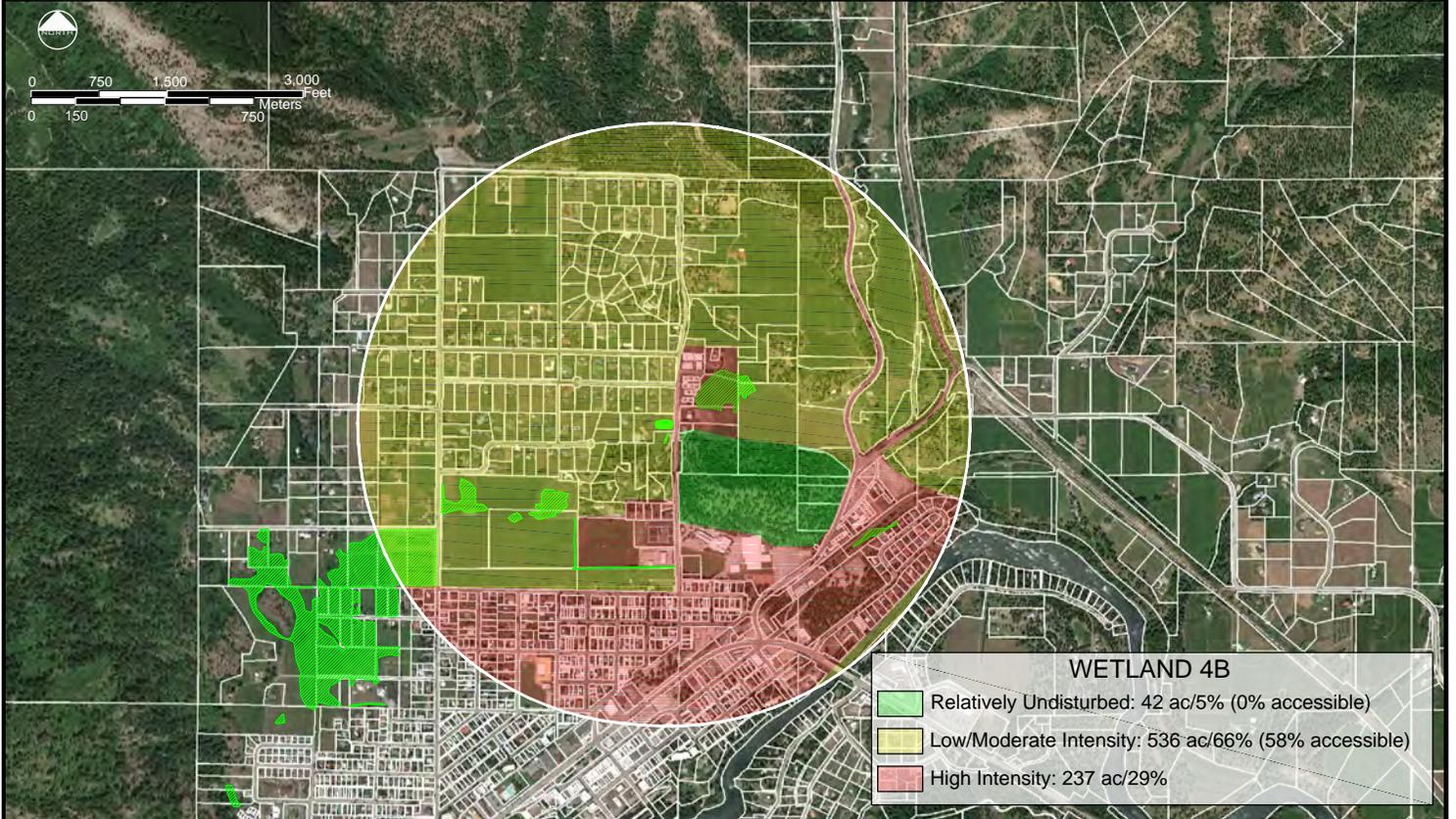
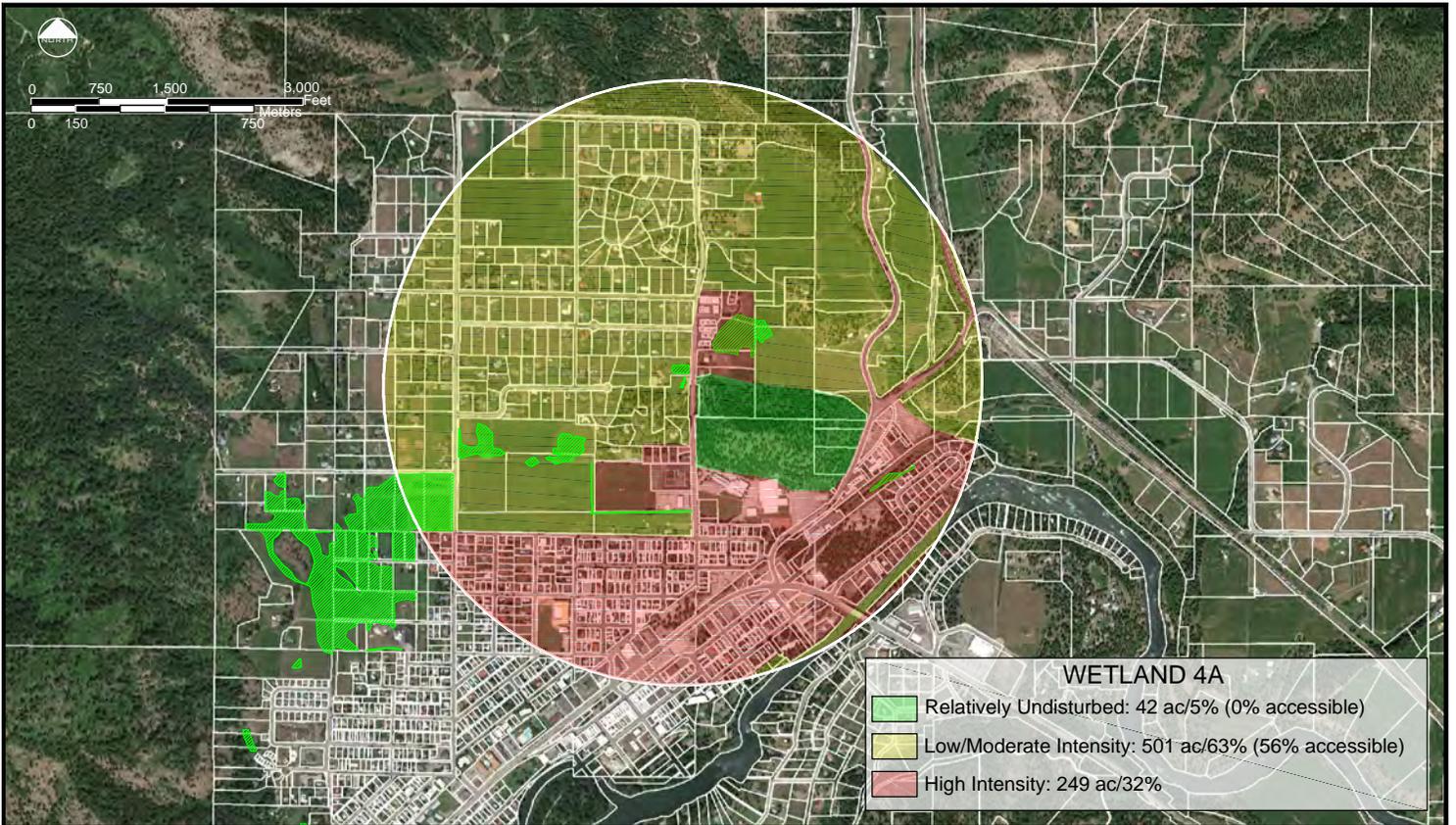
## LAND USE INTENSITY WETLAND 3C, CSD DITCH

### CITY OF LEAVENWORTH WETLANDS RATING FORM FIGURES

AT: LEAVENWORTH/SKI HILL  
LEAVENWORTH, WA 98826

COUNTY OF: CHELAN  
STATE: WA

SHEET NO. 9 OF 14 DATE: 6/29/16



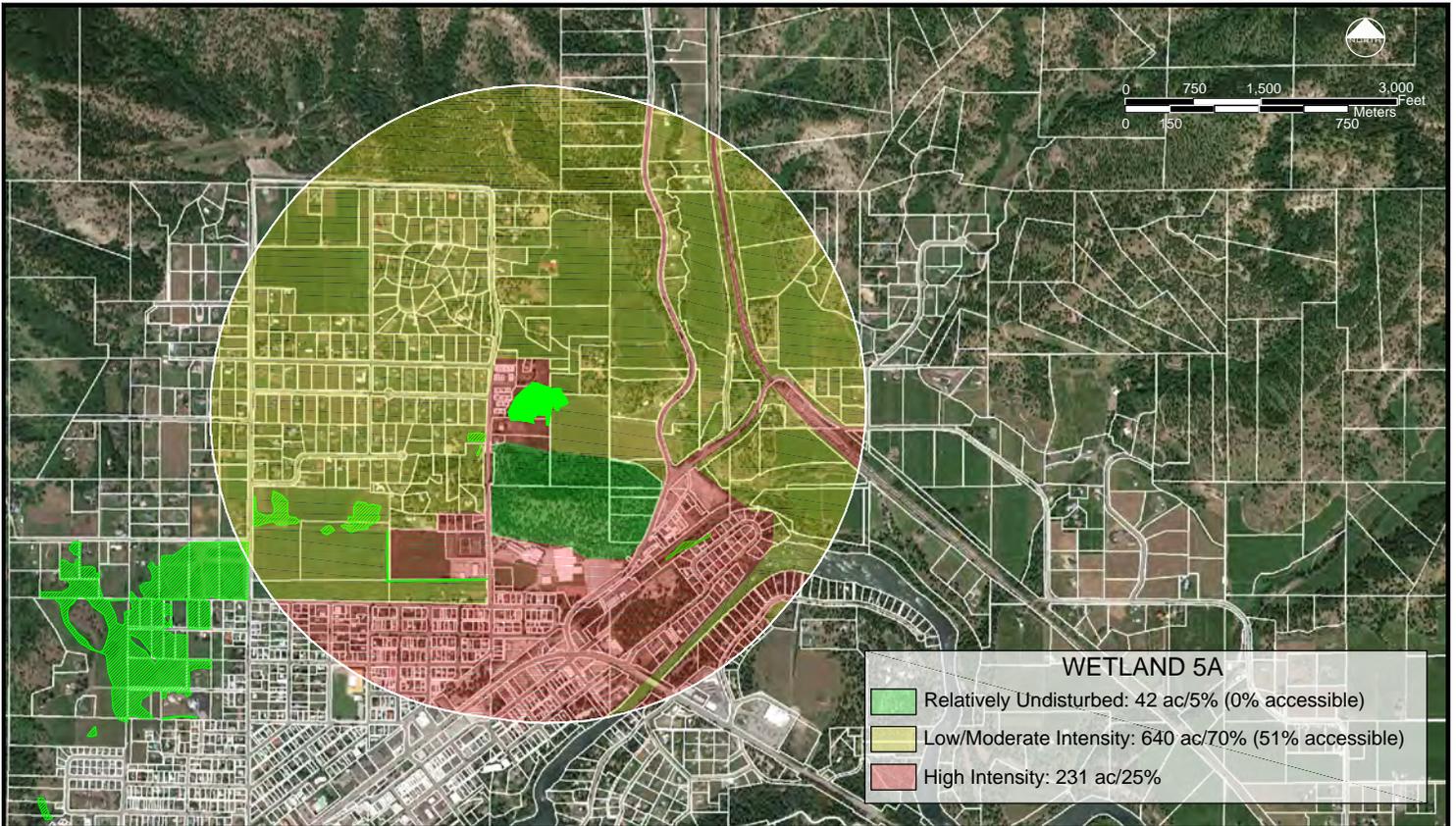
**LAND USE INTENSITY  
WETLAND 4A, 4B**

**CITY OF LEAVENWORTH WETLANDS  
RATING FORM FIGURES**

**AT: LEAVENWORTH/SKI HILL  
LEAVENWORTH, WA 98826**

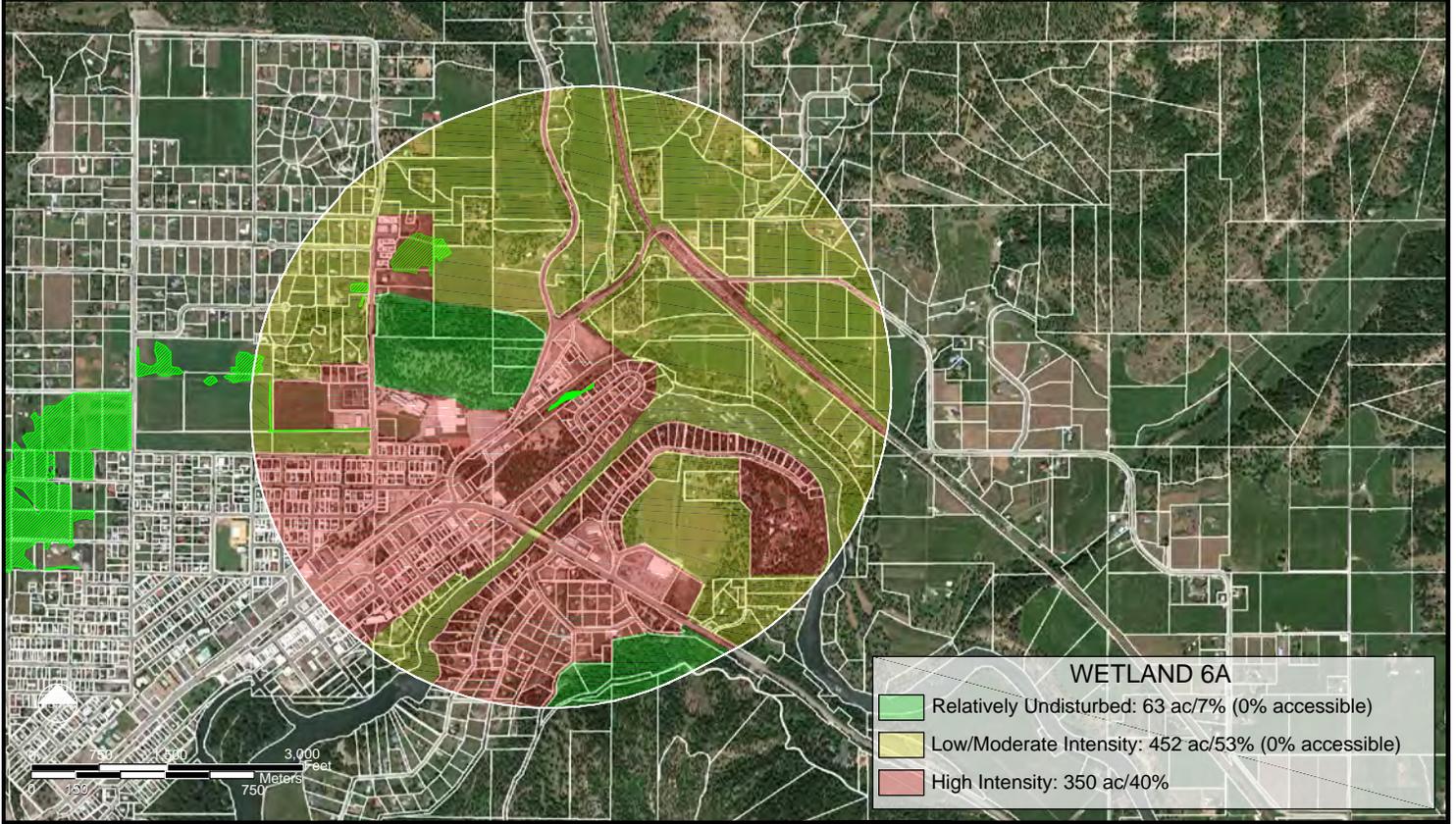
**COUNTY OF: CHELAN  
STATE: WA**

**SHEET NO. 10 OF 14 DATE: 6/29/16**



**WETLAND 5A**

- Relatively Undisturbed: 42 ac/5% (0% accessible)
- Low/Moderate Intensity: 640 ac/70% (51% accessible)
- High Intensity: 231 ac/25%



**WETLAND 6A**

- Relatively Undisturbed: 63 ac/7% (0% accessible)
- Low/Moderate Intensity: 452 ac/53% (0% accessible)
- High Intensity: 350 ac/40%

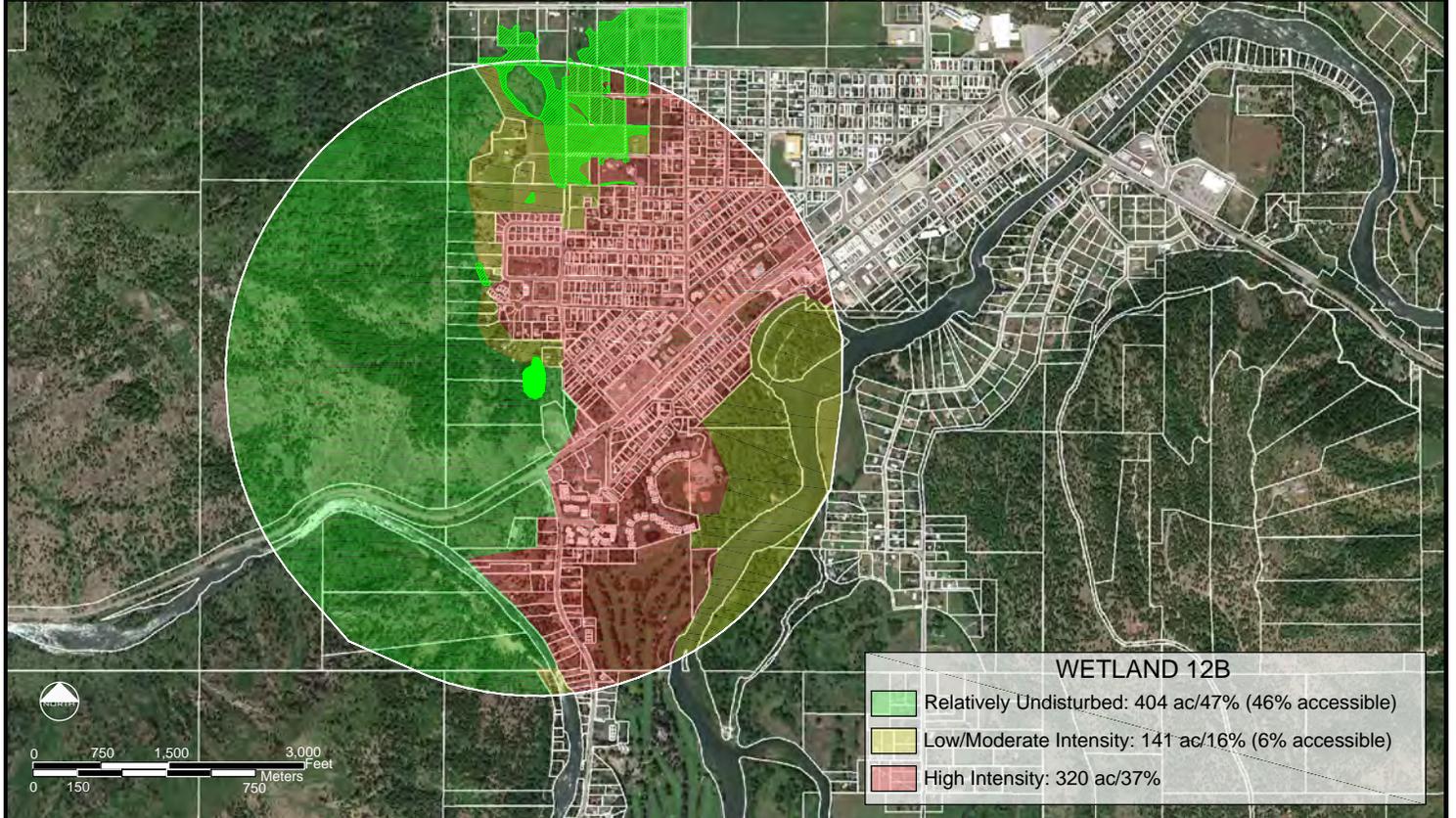
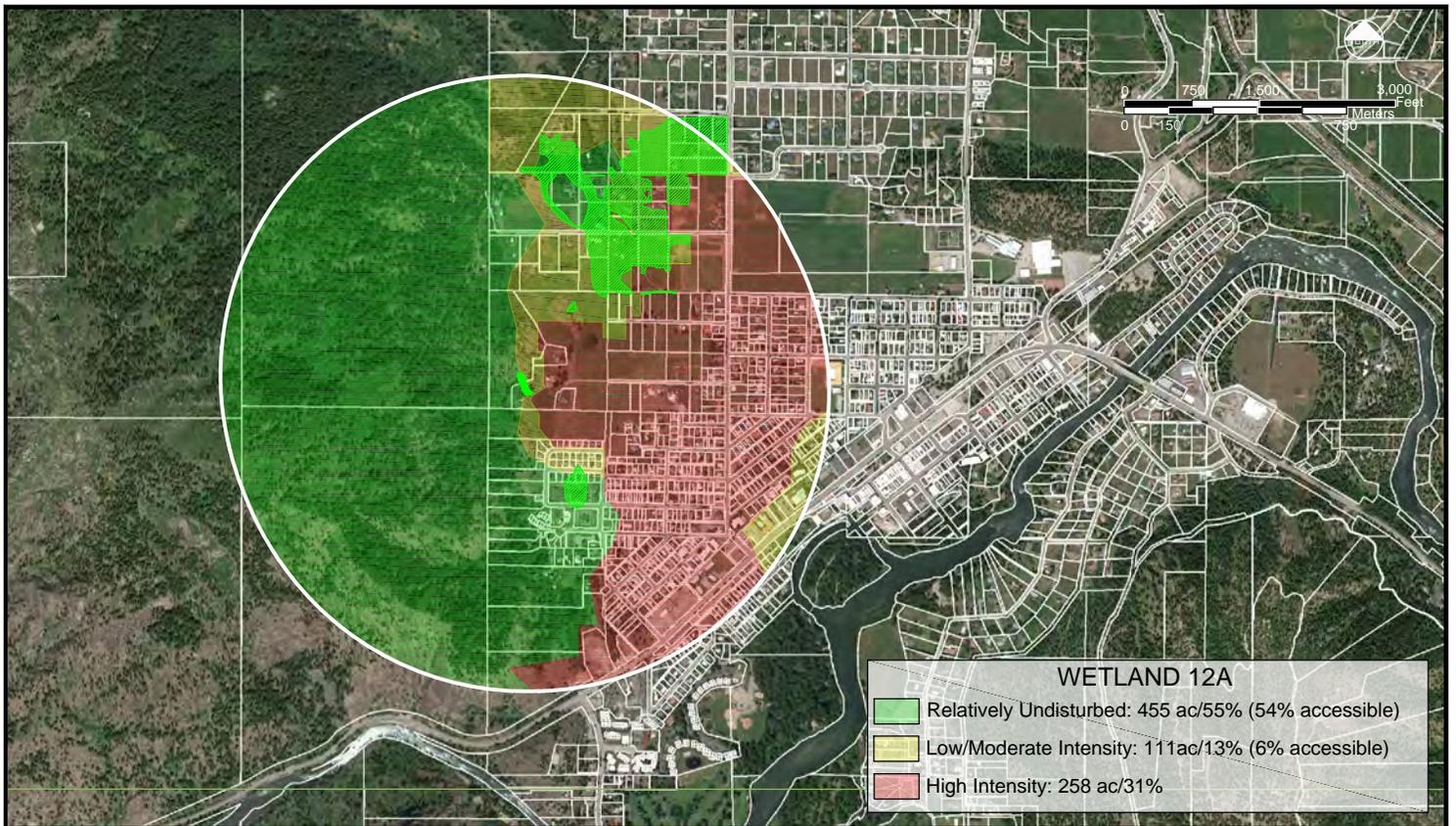
**LAND USE INTENSITY  
WETLAND 5A, 6A**

**CITY OF LEAVENWORTH WETLANDS  
RATING FORM FIGURES**

AT: LEAVENWORTH/SKI HILL  
LEAVENWORTH, WA 98826

COUNTY OF: CHELAN  
STATE: WA

SHEET NO. 11 OF 14 DATE: 6/29/16



**LAND USE INTENSITY  
WETLAND 12A, 12B**

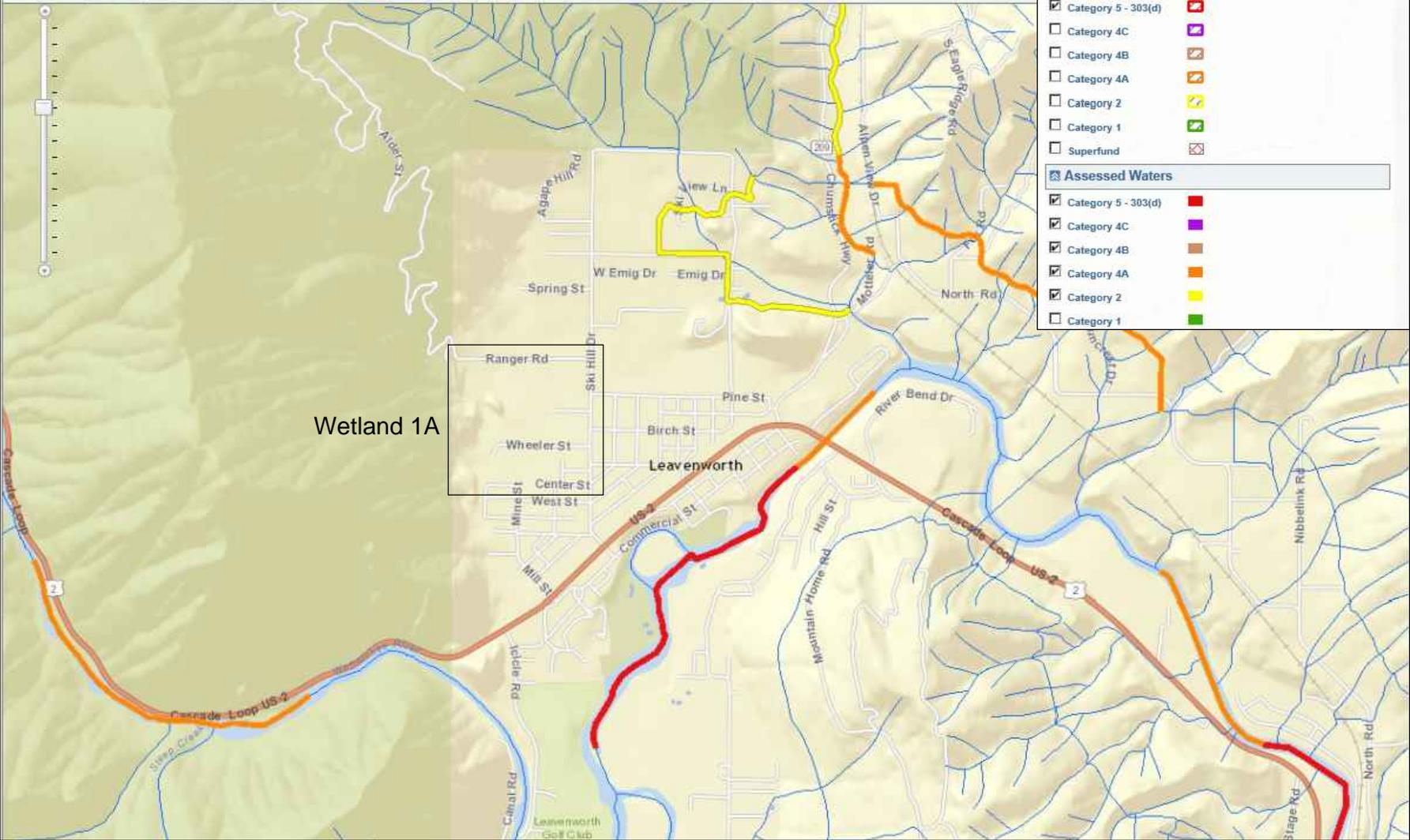
**CITY OF LEAVENWORTH WETLANDS  
RATING FORM FIGURES**

AT: LEAVENWORTH/SKI HILL  
LEAVENWORTH, WA 98826

COUNTY OF: CHELAN  
STATE: WA

SHEET NO. 11 OF 14 DATE: 6/29/16

- Administrative Boundaries
- Assessed Sediments
  - Category 5 - 303(d) ■
  - Category 4C ■
  - Category 4B ■
  - Category 4A ■
  - Category 2 ■
  - Category 1 ■
  - Superfund ■
- Assessed Waters
  - Category 5 - 303(d) ■
  - Category 4C ■
  - Category 4B ■
  - Category 4A ■
  - Category 2 ■
  - Category 1 ■



303(d) LIST MAP

CITY OF LEAVENWORTH WETLANDS  
RATING FORM FIGURES

AT: LEAVENWORTH/SKI HILL  
LEAVENWORTH, WA 98826

COUNTY OF: CHELAN  
STATE: WA

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DEPARTMENT OF ECOLOGY  
State of Washington

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## Water Quality Improvement Projects (TMDLs)

Water Quality Improvement > Water Quality Improvement Projects by WRIA > WRIA 45: Wenatchee

### WRIA 45: Wenatchee

The following table lists overview information and links to specific water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.

For general information about water quality improvement projects in the Wenatchee watershed please visit [www.ecy.wa.gov/programs/wg/tmdl/WenatcheeMulti/](http://www.ecy.wa.gov/programs/wg/tmdl/WenatcheeMulti/).

**County**

- Chelan

Waterbody Name	Pollutant(s)	Status**	TMDL Lead
Mission Creek	DDE DDT	EPA approved	<a href="#">Lynda Jamison</a> 509-575-2434
Wenatchee River Basin	Dissolved Oxygen and pH	EPA approved	<a href="#">Lynda Jamison</a> 509-575-2434
	Fecal Coliform Segments:	EPA approved	<a href="#">Lynda Jamison</a> 509-575-2434
	<ul style="list-style-type: none"> <li>Brender Creek</li> <li>Chumstick Creek</li> <li>Eagle Creek</li> <li>Fox Irrigation Return</li> <li>Icicle Irrigation Return</li> <li>Little Chumstick Creek</li> <li>Mission Creek</li> <li>No Name Creek</li> <li>Peshastin Irrigation Return</li> <li>Van Creek</li> <li>Yaksum Creek</li> </ul>		
Temperature Segments:	EPA approved	<a href="#">Lynda Jamison</a> 509-575-2434	
	<ul style="list-style-type: none"> <li>Chiwaukum Creek</li> <li>Icicle Creek</li> <li>Icicle Creek</li> <li>Little Wenatchee River</li> <li>Mission Creek</li> <li>Mission Creek</li> <li>Nason Creek</li> <li>Peshastin Creek</li> <li>Peshastin Creek</li> <li>Wenatchee River</li> <li>Wenatchee River</li> <li>Brender Creek</li> <li>Chumstick Creek</li> <li>Wenatchee River</li> </ul>		

\*\* Status will be listed as one of the following: Approved by EPA, Under Development or Implementation

**For more information about WRIA 45:**

- [Waterbodies in WRIA 45](#) - using the Water Quality Assessment Query Tool
- [Watershed Information for WRIA 45](#)

\* The Department of Ecology and other state resource agencies frequently use a system of 62 "Water Resource Inventory Areas" or "WRIAs" to refer to the state's major watershed basins.

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updated December 2014

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One Front Door  
to Washington's mit.doors

TMDLs, WRIA 45

CITY OF LEAVENWORTH WETLANDS  
RATING FORM FIGURES

AT: LEAVENWORTH/SKI HILL  
LEAVENWORTH, WA 98826

COUNTY OF: CHELAN  
STATE: WA

SHEET NO. 14 OF 14 DATE: 6/29/16

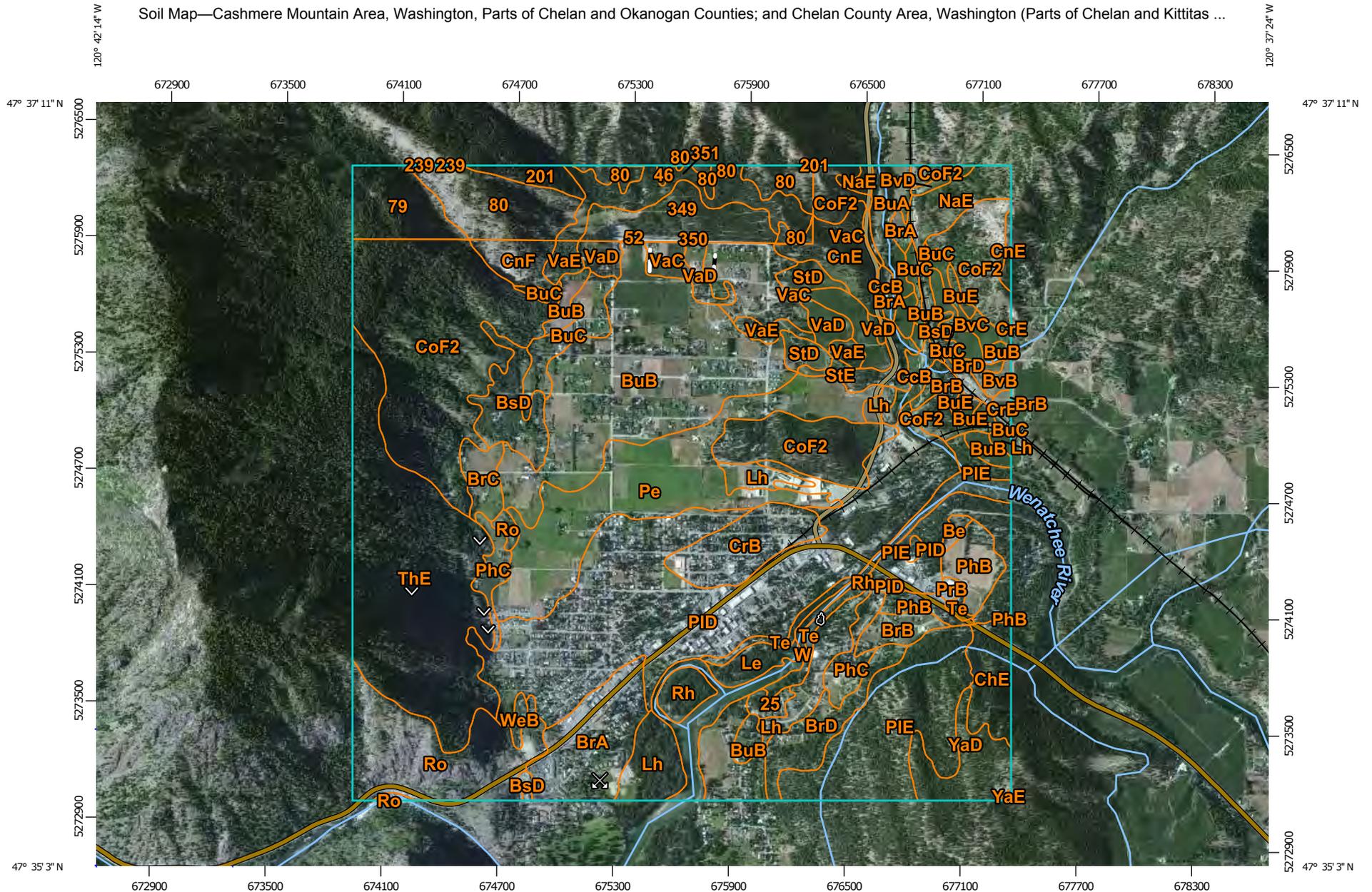
# **LEAVENWORTH REGIONAL STORMWATER PLAN**



## **WETLAND DELINEATION REPORT**

### **ATTACHMENT 3: NRCS SOIL SURVEY REPORT FOR THE STUDY AREA**

Soil Map—Cashmere Mountain Area, Washington, Parts of Chelan and Okanogan Counties; and Chelan County Area, Washington (Parts of Chelan and Kittitas ...



Map Scale: 1:27,700 if printed on A landscape (11" x 8.5") sheet.

0 400 800 1600 2400 Meters

0 1000 2000 4000 6000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

### Water Features



Streams and Canals

### Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

### Background



Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cashmere Mountain Area, Washington, Parts of Chelan and Okanogan Counties  
 Survey Area Data: Version 13, Sep 3, 2014

Soil Survey Area: Chelan County Area, Washington (Parts of Chelan and Kittitas Counties)  
 Survey Area Data: Version 10, Sep 3, 2014

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 25, 2010—Oct 17, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Cashmere Mountain Area, Washington, Parts of Chelan and Okanogan Counties (WA608)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
46	Blag-Rock outcrop complex, 30 to 80 percent slopes	1.1	0.0%
52	Burch loam, 3 to 8 percent slopes	0.8	0.0%
79	Cle Elum loam, 30 to 60 percent slopes	41.9	1.5%
80	Cle Elum loam, 30 to 60 percent south slopes	81.4	2.9%
201	Nard sandy loam, 30 to 60 percent slopes	12.1	0.4%
239	Rock outcrop	0.0	0.0%
349	Varelum loam, 8 to 15 percent slopes	46.8	1.7%
350	Varelum loam, 15 to 30 percent slopes	1.0	0.0%
351	Varelum loam, 30 to 60 percent slopes	45.6	1.6%
<b>Subtotals for Soil Survey Area</b>		<b>230.7</b>	<b>8.3%</b>
<b>Totals for Area of Interest</b>		<b>2,774.5</b>	<b>100.0%</b>

Chelan County Area, Washington (Parts of Chelan and Kittitas Counties) (WA607)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
25	Gravel pits	6.6	0.2%
Be	Beverly fine sandy loam	3.8	0.1%
BrA	Brief gravelly sandy loam, 0 to 3 percent slopes	74.1	2.7%
BrB	Brief gravelly sandy loam, 3 to 8 percent slopes	24.6	0.9%
BrC	Brief gravelly sandy loam, 8 to 15 percent slopes	18.4	0.7%
BrD	Brief gravelly sandy loam, 15 to 25 percent slopes	37.3	1.3%
BsD	Brief stony sandy loam, 0 to 25 percent slopes	53.0	1.9%
BuA	Burch fine sandy loam, 0 to 3 percent slopes	25.9	0.9%
BuB	Burch fine sandy loam, 3 to 8 percent slopes	246.1	8.9%
BuC	Burch fine sandy loam, 8 to 15 percent slopes	48.5	1.7%
BuE	Burch fine sandy loam, 25 to 45 percent slopes	6.5	0.2%

<b>Chelan County Area, Washington (Parts of Chelan and Kittitas Counties) (WA607)</b>			
<b>Map Unit Symbol</b>	<b>Map Unit Name</b>	<b>Acres in AOI</b>	<b>Percent of AOI</b>
BvB	Burch loam, 3 to 8 percent slopes	4.3	0.2%
BvC	Burch loam, 8 to 15 percent slopes	11.1	0.4%
BvD	Burch loam, 15 to 25 percent slopes	2.3	0.1%
CcB	Cashmont sandy loam, 3 to 8 percent slopes	12.2	0.4%
ChE	Chelan cobbly sandy loam, 25 to 45 percent slopes	30.8	1.1%
CnE	Cle Elum silt loam, 25 to 45 percent slopes	37.0	1.3%
CnF	Cle Elum silt loam, 45 to 65 percent slopes	19.1	0.7%
CoF2	Cle Elum-Rock outcrop complex, 25 to 65 percent slopes	335.1	12.1%
CrB	Colockum silt loam, 3 to 8 percent slopes	52.3	1.9%
CrE	Colockum silt loam, 25 to 45 percent slopes	0.1	0.0%
Le	Leavenworth loamy sand	14.6	0.5%
Lh	Leavenworth fine sandy loam	102.2	3.7%
NaE	Nard silt loam, 25 to 45 percent slopes	31.8	1.1%
Pe	Peoh silt loam	166.2	6.0%
PhB	Peshastin loam, 3 to 8 percent slopes	34.6	1.2%
PhC	Peshastin loam, 8 to 15 percent slopes	29.9	1.1%
PID	Peshastin stony loam, 0 to 25 percent slopes	327.9	11.8%
PIE	Peshastin stony loam, 25 to 45 percent slopes	171.3	6.2%
PrB	Pogue gravelly fine sandy loam, 3 to 8 percent slopes	2.8	0.1%
Rh	Riverwash	14.6	0.5%
Ro	Rock outcrop	104.4	3.8%
StD	Stemilt silt loam, 0 to 25 percent slopes	17.6	0.6%
StE	Stemilt silt loam, 25 to 45 percent slopes	18.6	0.7%
Te	Terrace escarpments	19.9	0.7%
ThE	Thow gravelly fine sandy loam, 25 to 45 percent slopes	227.7	8.2%

<b>Chelan County Area, Washington (Parts of Chelan and Kittitas Counties) (WA607)</b>			
<b>Map Unit Symbol</b>	<b>Map Unit Name</b>	<b>Acres in AOI</b>	<b>Percent of AOI</b>
VaC	Varelum silt loam, 3 to 15 percent slopes	68.7	2.5%
VaD	Varelum silt loam, 15 to 25 percent slopes	29.2	1.1%
VaE	Varelum silt loam, 25 to 45 percent slopes	19.8	0.7%
W	Water	50.5	1.8%
WeB	Wenatchee silt loam, 3 to 8 percent slopes	4.0	0.1%
YaD	Yaxon silt loam, 8 to 25 percent slopes	38.1	1.4%
YaE	Yaxon silt loam, 25 to 45 percent slopes	0.5	0.0%
<b>Subtotals for Soil Survey Area</b>		<b>2,543.8</b>	<b>91.7%</b>
<b>Totals for Area of Interest</b>		<b>2,774.5</b>	<b>100.0%</b>