Sewall Wetland Consulting, Inc.
PO Box 880
Fall City, WA 98024
Phone: 253-859-0515

June 27, 2014

Gia Clark
OneEnergy Renewables
101 Yesler Way
Seattle, Washington 98104

RE: Critical Area Report – Portion of Parcel #346233 – 3012 Hwy 97
City of Ellensburg, Washington
SWC Job #14-139

Dear Gia,

1.0 INTRODUCTION

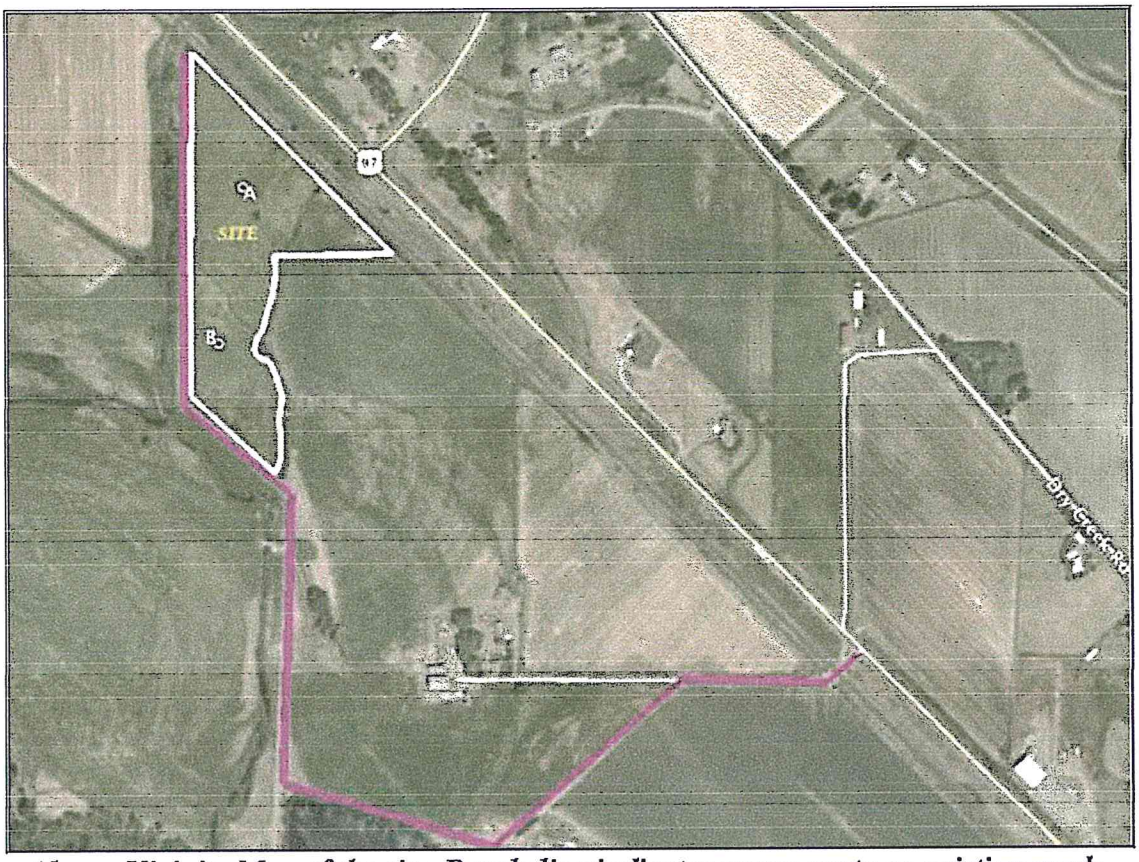
This report describes our observations of any jurisdictional wetlands, streams and buffers on or within 100' of the proposed Osprey Solar Project, located on a portion of Parcel #346233 off SR10, in unincorporated Kittitas County,Washington (the "site").

Specifically, the project will construct a solar panel facility on the site with associated fencing and utility connections.

The site is an approximate 7 acre area, located in Section 20, Township 18 north, range 18 East of the Willamette Meridian in Kittitas County, Washington.

2.0 METHODOLOGY

Ed Sewall of Sewall Wetland Consulting, Inc. inspected the site on April 8, 2014. The site was reviewed using methodology described in the ***Washington State Wetlands Identification Manual*** (WADOE, March 1997). This is the methodology currently recognized by the Kittitas County and the State of Washington for wetland determinations and delineations. The site was also reviewed using methodology described in the ***Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*** (USACOE September 2008) as required by the US Army Corps of Engineers starting in June of 2009. Soil colors were identified using the 1990 Edited and Revised Edition of the ***Munsell Soil Color Charts*** (Kollmorgen Instruments Corp. 1990.



Above: Vicinity Map of the site. Purple line indicates access route on existing roads.

The *Washington State Wetlands Identification and Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual* all require the use of the three-parameter approach in identifying and delineating wetlands. A wetland should support a predominance of hydrophytic vegetation, have hydric soils and display wetland hydrology. To be considered hydrophytic vegetation, over 50% of the dominant species in an area must have an indicator status of facultative (FAC), facultative wetland (FACW), or obligate wetland (OBL), according to the National List of Plant Species That Occur in Wetlands: Northwest (Region 9) (Reed, 1988). A hydric soil is "a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part". Anaerobic conditions are indicated in the field by soils with low chromas (2 or less), as determined by using the Munsell Soil Color Charts; iron oxide mottles; hydrogen sulfide odor and other indicators. Generally, wetland hydrology is defined by inundation or saturation to the surface for a consecutive period of 12.5% or greater of the growing season. Areas that contain indicators of wetland hydrology between 5%-12.5% of the growing season may or may not be wetlands depending upon other indicators. Field indicators include visual observation of soil inundation, saturation, oxidized rhizospheres, water marks on trees or other fixed

objects, drift lines, etc. Under normal circumstances, indicators of all three parameters will be present in wetland areas.

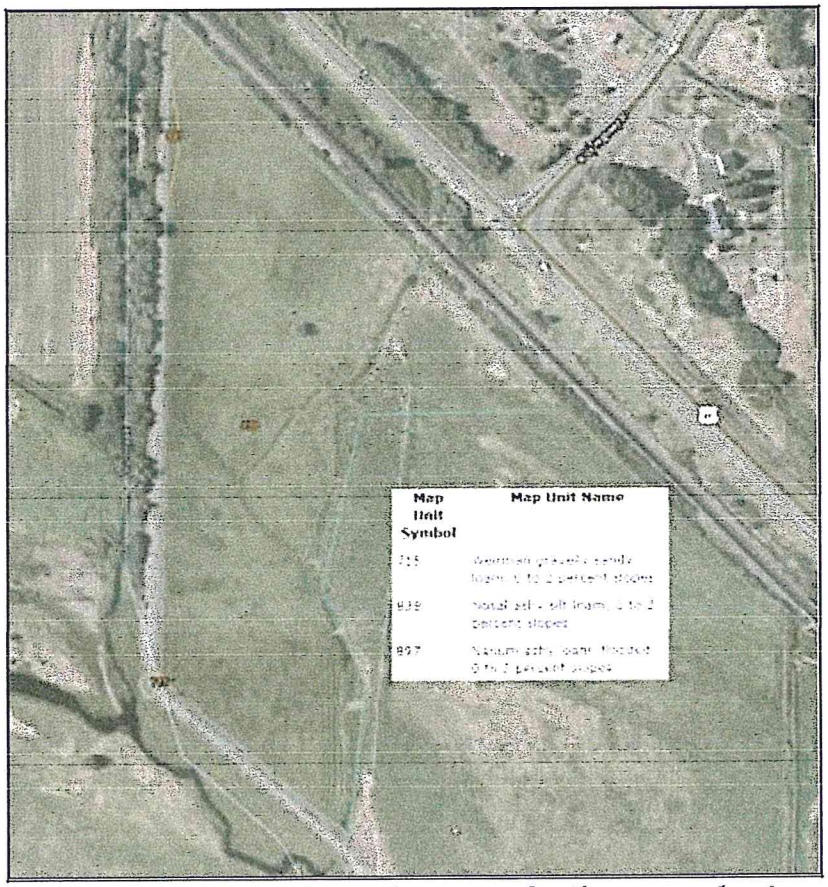
3.0 OBSERVATIONS

3.1 Existing Site Documentation.

Prior to visiting the site, a review of several natural resource inventory maps was conducted. Resources reviewed included the National Wetland Inventory Map, WDNR Fpars water type mapping, and data on file at NRCS SoilMapper website in regards to soil data for the site.

3.1.1 Soil Survey

According to data on file with the NRCS Soil Mapper website, the site is primarily Weirman gravelly sandy loam (Map unit #715).

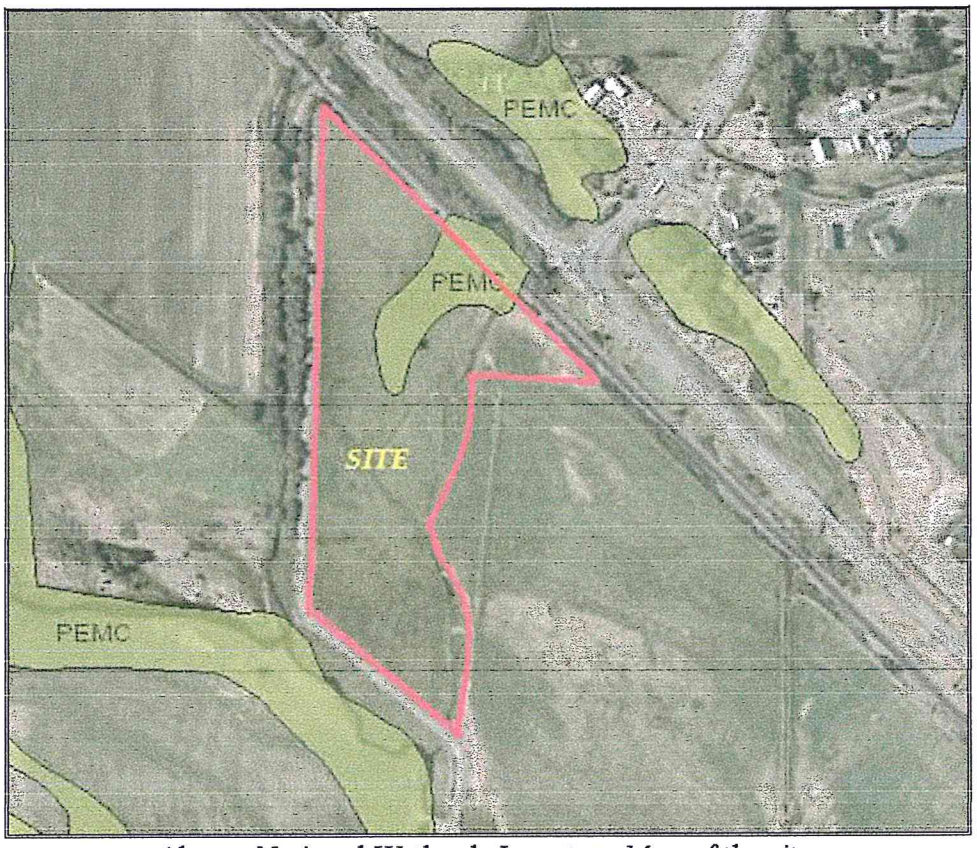


Above: NRCS Soil Mapper depiction of soil types on the site.

Weirman soils are moderately well-drained soils with a water table between 42"-60" below the surface. There is also a small unit of Nosal ashy silt loam (Map unit #838) and Nanum ashy loam (Map unit #897) along the western dike. These two soil units are somewhat poorly drained soils with water tables ranging from 19"-28" below the surface.

3.1.2 USFWS National Wetlands Inventory (NWI)

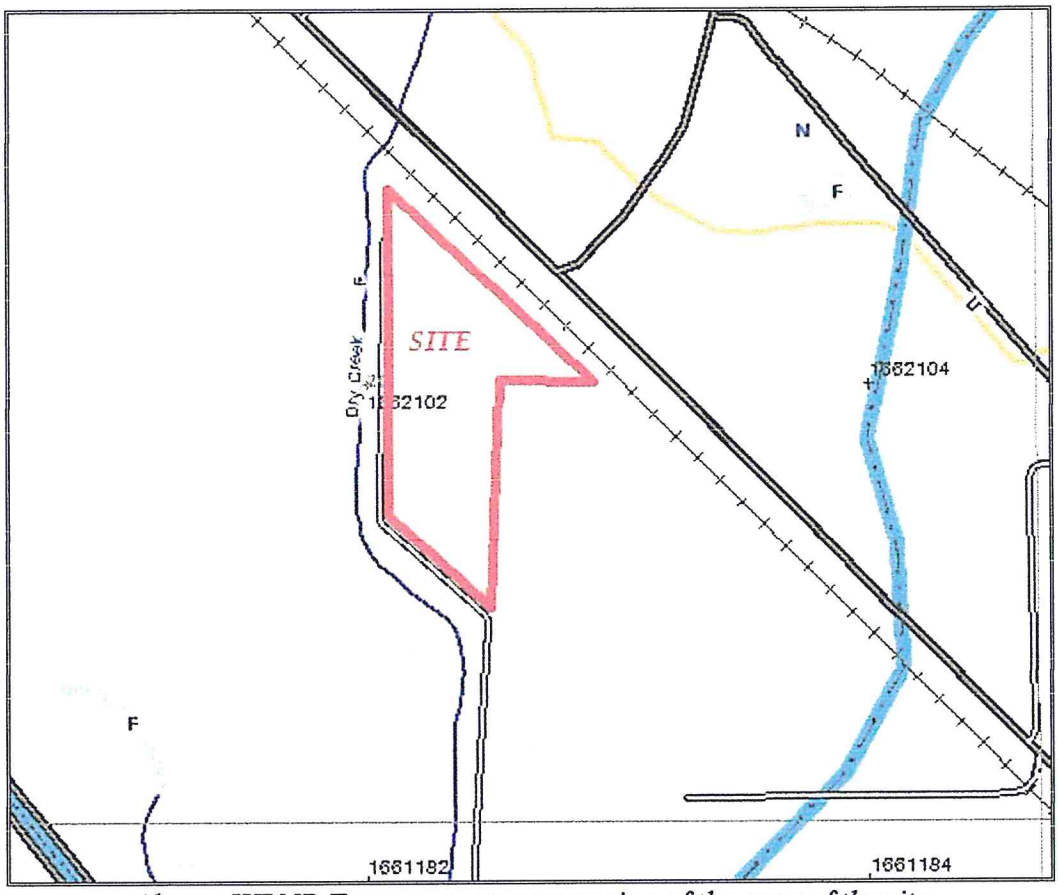
According to the NWI map for the site, there is an emergent wetland located along the north end of the site, extending over the railroad tracks. This wetland was mapped for USFWS for this inventory from aerial photograph interpretation with no field verification.



Above: National Wetlands Inventory Map of the site.

3.1.3 WDNR Fpars Water Type Mapping Website

According to the WDNR Fpars Water Type mapping of the site, the only stream near the site is Dry Creek, located west of the site on the west side of the existing dike. This stream is depicted as a Type F water indicating significant use by fish.



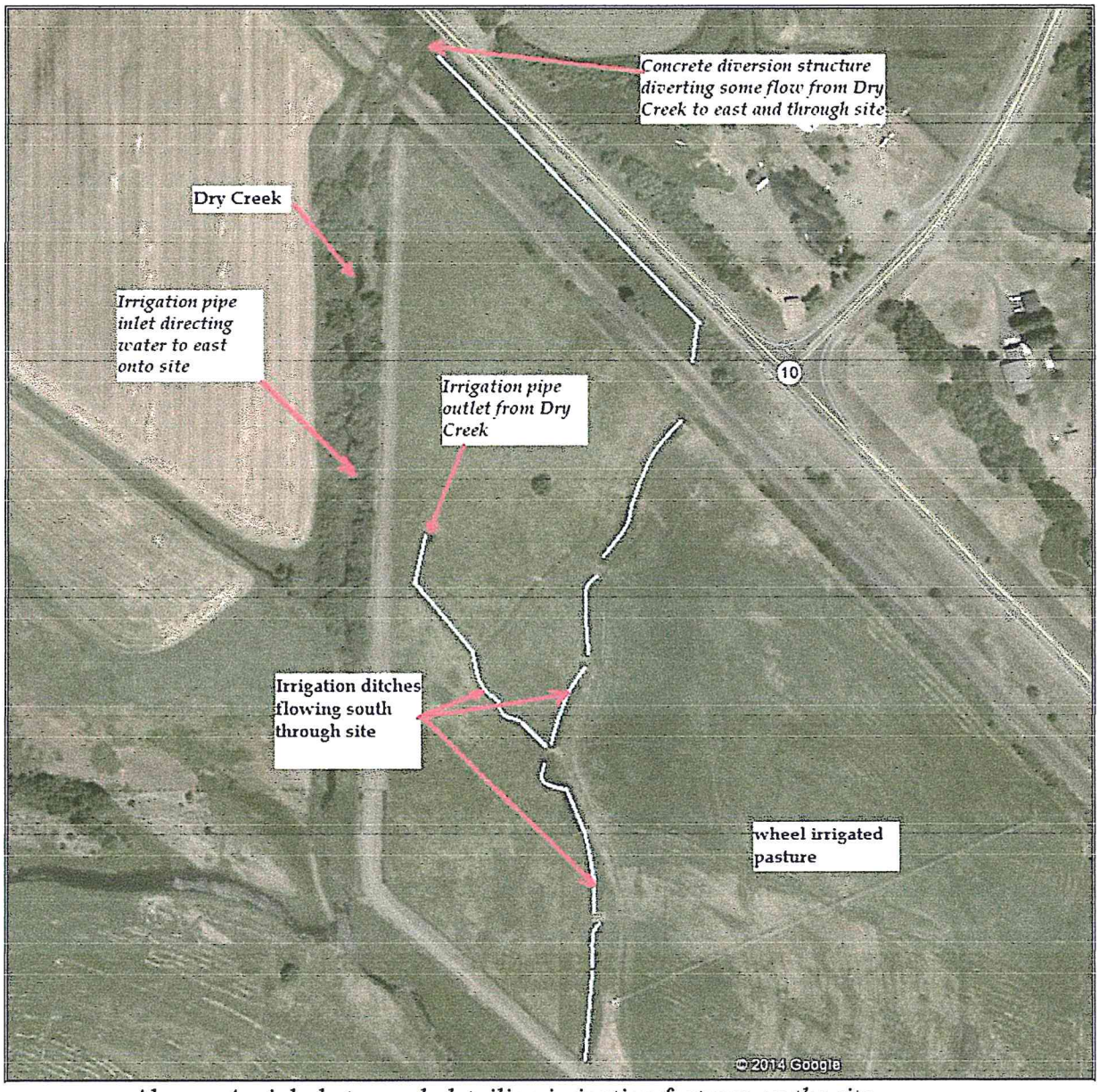
Above: WDNR Fpars water type mapping of the area of the site

3.2 Field observations

The site consists of pasture used for grazing on the Taylor Ranch. According to the owner Pat Taylor, he leases much of the area to local cattle ranchers to graze cattle on. During our site visit cattle were present on the site. The site is protected from flooding from Dry Creek to the west by a large gravel dike with an access road located along the top of the dike. This road borders the west and south sides of the study area.

The site is a portion of the Taylor Ranch property that is not irrigated but is used for grazing most of the year. Mr. Taylor indicated he has two irrigation turnouts which he leaves open for irrigation purposes on this portion of the site and to provide water for livestock.

The first irrigation turnout is a large concrete structure located north of the site along the east bank of Dry Creek just south of SR 10. This structure has the ability to be turned off, allowing no water from Dry Creek to pass through the site.



Above: Aerial photograph detailing irrigation features on the site.

Mr. Taylor indicates he usually leaves it open allowing water to pass through his site when there is flow in Dry Creek to allow grazing animals to drink out of the ditch. The diversion has no fish screens or fish blockages, and a significant portion of Dry Creeks flow appears to pass through the diversion and through the site. The ditch flows easterly

from the diversion between SR 10 and the railroad track grade. The ditch then passes southerly under the railroad tracks and flows south through the site in a ditch with several agricultural roads crossing the ditch with culverts. The sides of the ditch are trampled mud as is the bottom of the channel from the regular intrusion of cattle into the ditch. At the south end of the site, the ditch passes through a culvert rejoining Dry Creek south of the dike.

A second irrigation diversion from Dry Creek also diverts water to the site. This one enters the site in a pipe near the center of the site. This water is directed to the site from a pipe inlet on Dry Creek to the west. Water enters a ditch at the pipe outlet on-site and drains southeasterly to connect with the previously described irrigation ditch.

As previously described, the site is a grazed pasture. The pasture is dominated by tall fescue (*Festuca arundinacea*), but also includes a mix of common pasture grasses including some quackgrass (*Agropyron repens*), cheatgrass (*Bromus tectorum*) and timothy (*Phleum pretense*).

Soil pits revealed dense, cobbly soil material with mixed coloration and some hydric soil indicators. Soils were dry during our site inspection,

3.2.1 WETLANDS

Three wetland areas were observed on the site with some evidence of wetland hydrology. The following is a description of these areas;

Wetland A

Wetland A is located on the north side of the site and consists of a sedge (*Carex* spp.) and bentgrass (*Agrostis tenuis*) dominated depression. This wetland is located within a portion of the area identified as wetland on the NWI map. This wetland was flagged with flags A1-A9 and is 0.17 acres in size.

Soil pits excavated within the wetland revealed gravelly clay loam with a B-horizon soil color of 7.5YR 2.5/1 , with common, medium, distinct redoximorphic concentrations. Soils within the wetland were dry during our spring site visit but it is anticipate the area becomes saturated in the late summer seasonal, irrigation influenced water table rise.

Using the US Fish and Wildlife Wetland Classification Method (Cowardin et al. 1979), this wetland would be classified as PEM1C.

Using the WADOE Wetland Rating System for Eastern Washington (WADOE Pub #91-59, October 1991) as required by Kittitas County, the wetland classifies as a Category IV

wetland. According to Kittitas County Code (KCC) 17A.04.020, Category IV wetlands < 1 acre in size have no required buffer.

The three wetlands on-site were also rated as a group due to their similarity wetlands using the more recent Washington State Wetland Rating form from the WADOE Washington State Wetland Rating System for Eastern Washington, Revised (Aug 2004). Using the WADOE Wetland Rating system and rating the wetlands as depressional, Wetlands A, B and C scored a total of 35 points with 17 for habitat. This indicates Category III wetlands with low habitat value.

Wetland B

Wetland B is located on the south end of the site and is topographically the lowest part of the site. The north edge of this wetland was flagged with flags B1-B10, with its south and west edge being formed by the toe of the dike. Wetland B is 2.08 acres in size.

Wetland B is dominated by a mix of sedge (*Carex* spp.) and bentgrass (*Agrostis tenuis*). Accoording to Pat Taylor, this is the only part of the study area that seasonally will have some standing water during high water events.

Soil pits excavated within the wetland revealed a clay loam with some cobbles with a soil color of 10YR 2/2, with common, medium, distinct redoximorphic concentrations. Soils within the wetland were dry during our spring site visit but it is anticipate the area becomes saturated in the late summer seasonal, irrigation influenced water table rise.

Using the US Fish and Wildlife Wetland Classification Method (Cowardin et al. 1979), this wetland would be classified as PEM1C.

Using the WADOE Wetland Rating System for Eastern Washington (WADOE Pub #91-59, October 1991) as required by Kittitas County, Wetland B classifies as a Category III wetland with a total of 13 points According to Kittitas County Code (KCC) 17A.04.020, Category III wetlands >10,000sf have a buffer ranging from 20'-80' depending upon the sensitivity of the wetland.

The three wetlands on-site were also rated as a group due to their similarity wetlands using the more recent Washington State Wetland Rating form from the WADOE Washington State Wetland Rating System for Eastern Washington, Revised (Aug 2004). Using the WADOE Wetland Rating system and rating the wetlands as depressional, Wetlands A, B and C scored a total of 35 points with 17 for habitat. This indicates Category III wetlands with low habitat value.

Wetland C

Wetland C is located along the east side of the dike near the center of the site. It is believed the hydrology of this area is a result of water from the central irrigation ditch impacting the water table in this area. The east edge of this wetland was flagged with flags C-C9, with its west edge being formed by the toe of the dike. Wetland C is 0.29 acres in size.

Wetland C is a monotypic stand of reed canary grass (*Phalaris arundiancea*).

Soil pits excavated within the wetland revealed a clay loam with some cobbles with a soil color of 10YR 2/2, with common, medium, distinct redoximorphic concentrations. Soils within the wetland were dry during our spring site visit but it is anticipate the area becomes saturated in the late summer, seasonal irrigation influenced water table rise.

Using the US Fish and Wildlife Wetland Classification Method (Cowardin et al. 1979), this wetland would be classified as PEM1C.

Using the WADOE Wetland Rating System for Eastern Washington (WADOE Pub #91-59, October 1991) as required by Kittitas County, Wetland C classifies as a Category III wetland with a total of 13 points According to Kittitas County Code (KCC) 17A.04.020, Category III wetlands >10,000sf have a buffer ranging from 20'-80' depending upon the sensitivity of the wetland.

The three wetlands on-site were also rated as a group due to their similarity wetlands using the more recent Washington State Wetland Rating form from the WADOE Washington State Wetland Rating System for Eastern Washington, Revised (Aug 2004). Using the WADOE Wetland Rating system and rating the wetlands as depressional, Wetlands A, B and C scored a total of 35 points with 17 for habitat. This indicates Category III wetlands with low habitat value.

Off-site wetland

There is a narrow band of scrub-shrub and forested wetland along the east bank of Dry Creek and separated from the site by the dike. This wetland is vegetated with a mix of willow (*Salix lasiandra, S. sitchensis & S. exigua*), red-osier dogwood (*Cornus stolonifera*), and reed canary grass.

Using the WADOE Wetland Rating System for Eastern Washington (WADOE Pub #91-59, October 1991) as required by Kittitas County, this off-site wetland classifies as a

Category II wetland with a total of 30 points. According to Kittitas County Code (KCC) 17A.04.020, Category II wetlands have a buffer ranging from 25'-100' depending upon the sensitivity of the wetland.

3.2.2 Streams

The site contains two irrigation ditches, as well as a portion of the buffer of Dry Creek which is located off-site to the west.

Dry Creek

Dry Creek is known to have high use by various salmonid species including spring chinook salmon, coho salmon and mid-columbia steelhead, as well as rainbow trout. Dry Creek best meets the criteria of a Type 2 water. According to KCC 17A.02.300, Type 2 waters have a buffer ranging from 40'-100'.

Irrigation ditches

As previously described, there are two irrigation inlets with associated ditches through the site. Although these are man-made features and have the ability to be turned off stopping flow, currently they do drain waters of Dry Creek through the site. As a result, there is no required buffer for irrigation ditches. However, given that fish do pass through these ditches since there is no screening on the Dry Creek inlets, these ditches may be considered a Type 3 water until flow was shut off. Typically, Type 3 waters have a buffer from 20'-50 under KCC KCC 17A.02.300.

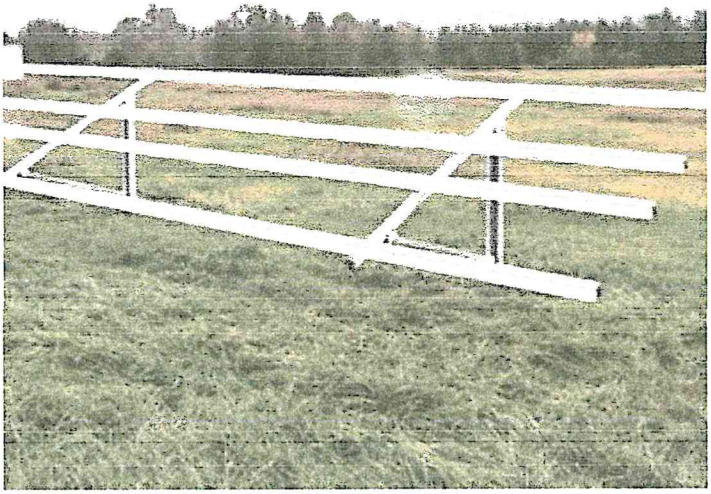
4.0 PROPOSED PROJECT

OneEnergy Development, LLC proposes to develop a Solar Photovoltaic (PV) project on the site. OneEnergy Development LLC and the landowners have signed a 25-year lease agreement to allow a small section of the property to be leased for the solar energy generating project.

The project will consist of PV modules supported on either fixed tilt support frames or tracking panel systems. Solar panels sit approximately 8 to 12 feet off the ground, and will be arranged in rows with approximately 8 feet of space between the rows. The arrangement of the panels will follow the natural topography of the site when possible. The Taylor site is relatively flat and OER does not expect significant grading beyond some rough grading for a service drive. The foundations consist of driven piles and are expected to reach a depth no greater than 5 feet. Final depths will be determined by the geotechnical review of the site.

There will be 8' perimeter fences and landscape screening if necessary.

An inverter box will be placed on the north side of the project. Depending on site conditions the pad will be a shallow poured in place concrete pad approximately 12 x 8 or may be help up on concrete footers.



Above and Below: Typical Panel construction showing minimum impact to land surface.

A new utility pole will be installed on the north side of the property to allow interconnection to the existing poles on the north side of the Burlington Northern Rail Road.

Site access with be on existing gravel roads and the dike road. An access drive turn around will be constructed on the northern side of the project as shown in the preliminary layout. Exact layout, material and total disturbance area are yet to be determined. The proposed project is the construction of a solar panel farm with associated infrastructure.

The proposed panel structures will be located on small pin piles throughout the site outside the wetlands and buffers with the exception of Wetland A. Panels are proposed to be placed over Wetland A but will not cause any fill of the wetland nor disturbance to vegetation as they are elevated on racks.

5.0 REGULATIONS

In addition to the wetland regulations previously described for wetlands and streams, certain activities (filling and dredging) within "waters of the United States" may fall under the jurisdiction of the US Army Corps of Engineers (ACOE). The ACOE regulates all discharges into "waters of the United States" (wetlands) under Section 404(b) of the Clean Water Act.

The use of pin piles does not constitute fill of waters of the US under an existing interpretation by the Army Corps of Engineers. As a result no impacts or fill of wetlands is proposed.

If the proposal was to be changed and include fill of wetlands were proposed, both the Corps of Engineers and Washington Department of Ecology should be contacted regarding permit conditions.

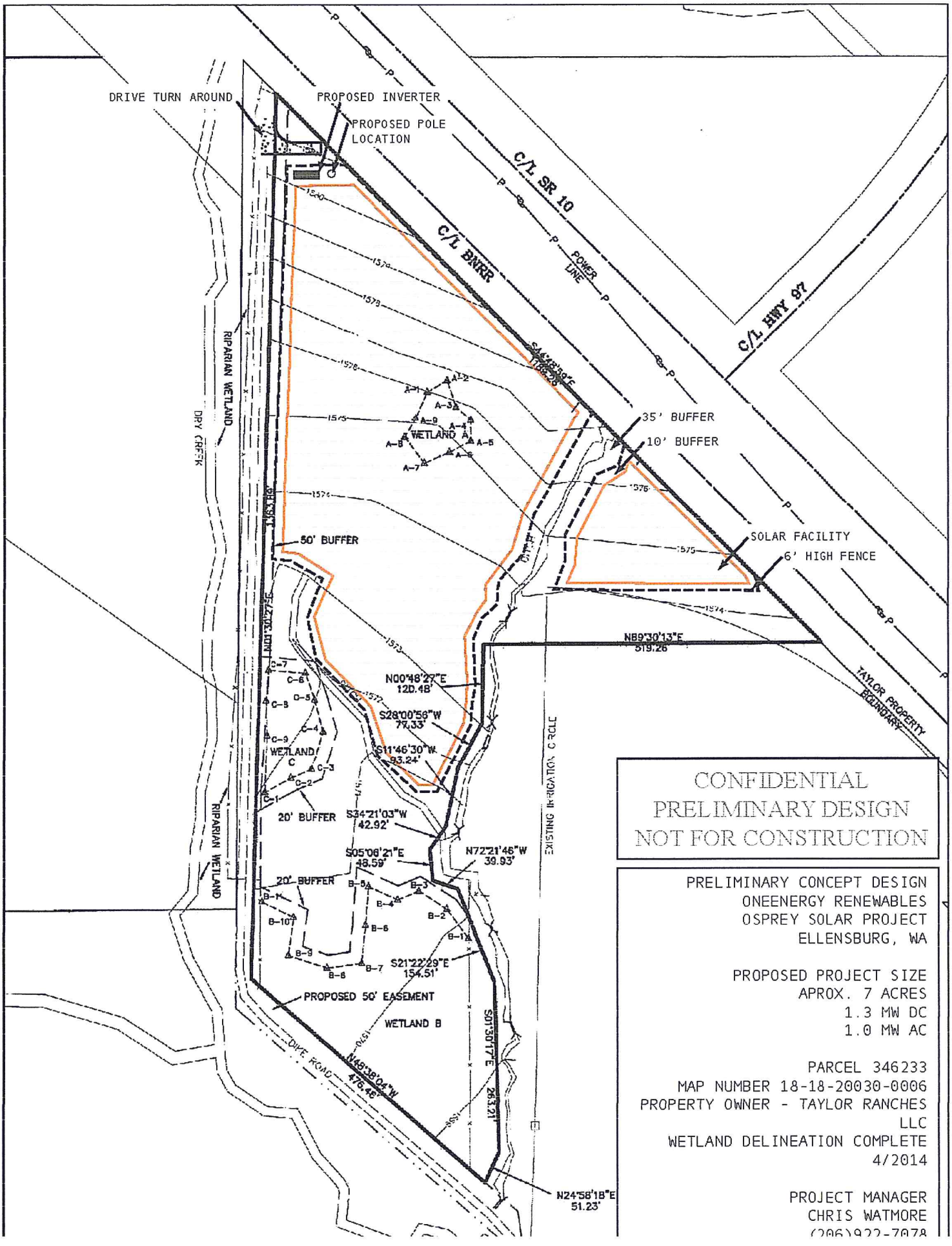
If you have any questions in regards to this report or need additional information, please feel free to contact me at (253) 859-0515 or at esewall@sewallwc.com .

Sincerely,
Sewall Wetland Consulting, Inc.

Ed Sewall
Senior Wetlands Ecologist PWS #212

ONEENERGY RENEWABLES™

101 YESLER WAY
SUITE 401
SEATTLE WA 98104



CONFIDENTIAL
PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

PRELIMINARY CONCEPT DESIGN
ONEENERGY RENEWABLES
OSPREY SOLAR PROJECT
ELLENSBURG, WA

PROPOSED PROJECT SIZE
APROX. 7 ACRES
1.3 MW DC
1.0 MW AC

PARCEL 346233
MAP NUMBER 18-18-20030-0006
PROPERTY OWNER - TAYLOR RANCHES LLC
WETLAND DELINEATION COMPLETE 4/2014

PROJECT MANAGER
CHRIS WATMORE
(206)922-7078

A

WETLANDS RATING FIELD DATA FORM

BACKGROUND INFORMATION: 4/6/14

Name of Rater: Ed Sull Affiliation: _____ Date: _____

Name of wetland (if known): Wetland A

Government Jurisdiction of wetland: Ka-Tritat

Location: 1/4 S: _____ of 1/4 S: _____ SEC: _____ TWNSHP: _____ RNGE: _____

SOURCES OF INFORMATION: (Check all sources that apply)

Site visit: ___ USGS Topo Map: ___ NWI map: ___ Aerial Photo: ___ Soils survey: ___

Other: ___ Describe: _____

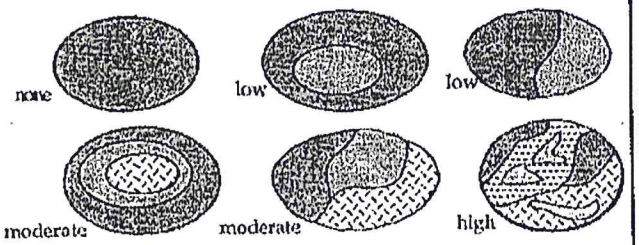
WHEN THE FIELD DATA FORM IS COMPLETE ENTER CATEGORY HERE:	IV
Q.1. High Quality Natural Heritage Wetland. Answer this question if you have adequate information or experience to do so. If not find someone with the expertise to answer the questions. Then, if the answer to questions 1a, 1b and 1c are all NO, contact the Natural Heritage program of DNR.	Circle answers
1a. Is there significant evidence of human-caused changes to topography or hydrology of the wetland? Significant changes could include clearing, grading, filling, logging of the wetland or its immediate buffer, or culverts, ditches, dredging, diking or drainage of the wetland. Briefly describe the changes and your information source/s: farmed	Yes: go to Q.3 No: go to 1b.
1b. Are there populations of non-native plants which are currently present and appear to be invading native populations? Briefly describe any non-native plant populations and information source(s):	Yes: go to Q.3. No: go to 1c.
1c. Is there significant evidence of human-caused disturbance of the water quality of the system? Degradation of water quality could be evidenced by culverts entering the system, direct road/parking lot runoff, evidence of historic dumping of wastes, oily sheens, extreme eutrophic conditions, livestock use or dead fish etc. Briefly describe:	Yes: go to Q.3. No: Possible Category I

Q.2. Regionally Rare Native Wetland Communities. The Department of Ecology is developing a methodology for regionally rare native wetland communities. It is not yet available for use.	
Q.3. Irreplaceable Ecological Functions: Does the wetland:	No to all: go to Q.4.
- have at a least 1/2 acre of contiguous peat wetland;	Yes: go to 3a.
- or, have a forested class greater than 1 acre;	Yes: go to 3b.
- or, have characteristics of an estuarine system;	Yes: go to 3c.
- or, have eel grass, floating or non-floating kelp beds?	Yes: go to 3d.
3a. Peat Wetlands. 3a1. Does at least 1/2 acre of the contiguous peat wetland have < 25% areal cover of any combination of species from the list of invasive/exotic species on p.19, and have < 80% areal cover of *Spirea douglasii*?	Yes: Category I No: go to Q.4.
Q.3b. Mature forested wetland. 3b1. Is the average age of dominant trees in the forested wetland > 80 years?	Yes: Category I No: go to 3b2.
3b2. Is the average age of dominant trees in the forested wetland 50-80 years, and is the structural diversity high as characterized by a multi-layer community of trees > 50' tall and trees 20'-49' tall and shrubs and herbaceous groundcover?	Yes: go to 3b3. No: go to Q.5.
3b3. Is > 50% (areal cover) of the dominant plants in one or more layers (canopy, young trees, shrubs, herbs) invasive/exotic plant species from the p.19 list?	Yes: go to Q.5. No: Category I

A

Q.3c. Estuarine wetlands:	
3c1. Is the wetland listed as National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental or Scientific Reserves designated under WAC 332-30-151?	Yes: Category I No: go to 3c2.
3c2. Is the wetland > 5 acres;	Yes: Category I
or is the wetland 1-5 acres;	Yes: go to 3c3.
or is the wetland < 1 acre?	Yes: go to 3c4.
3c3. Does the wetland meet at least 3 of the following 4 criteria: ..... - minimum existing evidence of human related disturbance such as diking, ditching, filling, cultivation, grazing or the presence of non-native plant species (see guidance for definition); - surface water connection with tidal saltwater or tidal freshwater; - at least 75% of the wetland has a 100' buffer of ungrazed pasture, open water, shrub or forest; - has at least 3 of the following features: low marsh; high marsh; tidal channels; lagoon(s); woody debris; or contiguous freshwater wetland.	Yes: Category I No: Category II
3c4. Does the wetland meet all of the four criteria under 3c3. (above)?	Yes: Category II No: Category III
Q.3d. Eel Grass and Kelp Beds.	
3d1. Are eel grass beds present?	Yes: Category I No: go to 3d2.
3d2. Are there floating or non-floating kelp bed(s) present with greater than 50% macro algal cover in the month of Augus; or September?	Yes: Category I No: Category II
Q.4. Category IV wetlands	
4.1. Is the wetland: less than 1 acre and, hydrologically isolated and, comprised of one vegetated class that is dominated (> 80% areal cover) by one species from the list in guidance p.18.	Yes: Category IV No: go to 4.2.
4.2. Is the wetland: less than two acres and, hydrologically isolated, with one vegetated class, and > 90% of areal cover is any combination of species from the list in guidance p.19.	Yes: Category IV No: go to Q.5.

Q.5. Significant habitat value. Answer all questions and enter data requested.		Circle scores that qualify
5a. Total wetland area Estimate area, select from choices in the near-right column, and score in the far column: Enter acreage of wetland here:_____acres, and source:_____	acres > 20.00 10 - 19.99 5 - 9.99 1 - 4.99 0.1 - 0.99 <0.1	Yes=6 Yes=5 Yes=4 Yes=3 Yes=2 Yes=1
5b. Wetland classes: Circle the wetland classes below that qualify: Open Water: If the area of open water is > 1/2 acre or > 10% of the total wetland area. Source: _____ Aquatic Beds: if the area of aquatic beds > 10% of the open water area or > 1/2 acre. Emergent: If the area of emergent class is > 1/2 acre or > 10% of the total wetland area. Scrub-Shrub: If the area of scrub-shrub class is > 1/2 acre or > 10% of the total wetland area. Forested: if area of forested class is > 1/2 acre or > 10% of the total wetland area.		
Add the number of wetland classes, above, that qualify, and then score according to the columns at right. e.g. If there are 4 classes (aquatic beds, open water, emergent & scrub-shrub), you would circle 7 points in the far right column.	# of classes 1 ..... 2 ..... 3 ..... 4 ..... 5	Yes =1 Yes =3 Yes =5 Yes =7 Yes =10
5c. Plant species diversity. For all wetland classes (at right) that qualify in 5b. above, count the number of different plant species you can find. You do not have to name them. Score in column at far right: e.g. If a wetland has an aquatic bed class with 3 species, an emergent class with 4 species and a scrub-shrub class with 2 species you would circle 2, 2, and 1 in the far column.	Class # of species Aquatic Bed 1-2... " " 3... " " >3... Emergent 1-2... " 3-4... " >4... Scrub-Shrub 1-2... " 3-4... " >4... Forested 1-2... " 3-4... " >4...	Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3

5d. Structural diversity. If the wetland has a forested class, add 1 point for each of the following: -trees > 50' tall -trees 20'- 49' tall -shrubs -herbaceous ground cover	 Yes=1 Yes=1 Yes=1 Yes=1
5e. Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none?  	High=3 Moderate=2 Low=1 None=0
5f. Habitat features. Answer questions below, circle features that apply, and score to right: Is there evidence of current use by beavers ? Is a heron rookery located within 300'? Are raptor nest/s located within 300'? Are there at least 3 standing dead trees (snags) per acre? Are any of these standing dead trees (snags) > 10" in diameter? Are there any other perches (wires, poles or posts)? Are there at least 3 downed logs per acre?	 Yes=3 Yes=2 Yes=1 Yes=1 Yes=1 Yes=1 Yes=1
5g. Connection to streams. (Score one answer only.) Is the wetland connected at any time of the year via surface water: to a perennial stream or a seasonal stream with fish; or, to a seasonal stream without fish; or, is not connected to any stream?	 Yes=5 Yes=3 Yes=0

5h. Buffers. STEP 1 Estimate (to the nearest 5%) the % of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply the %'s by the factor(s) below and enter result in column to right: STEP 2 Multiply result(s) of step 1: by 1, if buffer width is 25-50'; by 2, if buffer width is 50-100'; by 3, if buffer width is >100'. Enter results below and add subscore:	
roads, buildings or parking lots: %___ x 0 =	0
lawn, grazed pasture, vineyards or annual crops: % ___ x 1 =	___ x ___ = ___
ungrazed grassland or orchards: %___ x 2 =	___ x ___ = ___
open water or native grasslands: %___ x 3 =	___ x ___ = ___
forest or shrub: %___ x 4 =	___ x ___ = ___
Add Buffer total = ___	
STEP 3. Score points according to table at right: Buffer total 900-1200... 600-899.... 300-599.... 100-299....	 Yes=4 Yes=3 Yes=2 Yes=1
5i. Connection to other habitat areas: - Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor > 100' wide with good forest or shrub cover to any other habitat area? - Is there a narrow corridor < 100' wide with good cover or a wide corridor > 100' wide with low cover to any other habitat area? - Is there a narrow corridor < 100' wide with low cover or a significant habitat area within 0.25 mile but no corridor? - Is the wetland and buffer completely isolated by development and or cultivated agricultural land?	 Yes =5 Yes=3 Yes=1 Yes=0
NOW: Add the scores circled (for Q.5a - Q.5i above) to get a Total Is the Total greater than or equal to 22 points	Total = ____ Yes: Category II No: Category III

B

WETLANDS RATING FIELD DATA FORM

BACKGROUND INFORMATION:

Name of Rater: Ed Sewell Affiliation: _____ Date: 4-16-14

Name of wetland (if known): Wetland B - Ore Energy

Government Jurisdiction of wetland: _____

Location: 1/4 S: _____ of 1/4 S: _____ SEC: _____ TWNSHP: _____ RNGE: _____

SOURCES OF INFORMATION: (Check all sources that apply)

Site visit: ___ USGS Topo Map: ___ NWI map: ___ Aerial Photo: ___ Soils survey: ___

Other: ___ Describe: _____

WHEN THE FIELD DATA FORM IS COMPLETE ENTER CATEGORY HERE:	III
Q.1. High Quality Natural Heritage Wetland. Answer this question if you have adequate information or experience to do so. If not find someone with the expertise to answer the questions. Then, if the answer to questions 1a, 1b and 1c are all NO, contact the Natural Heritage program of DNR.	Circle answers
1a. Is there significant evidence of human-caused changes to topography or hydrology of the wetland? Significant changes could include clearing, grading, filling, logging of the wetland or its immediate buffer, or culverts, ditches, dredging, diking or drainage of the wetland. Briefly describe the changes and your information source/s: Farmed, ditched, diked	Yes: go to Q.3 No: go to 1b.
1b. Are there populations of non-native plants which are currently present and appear to be invading native populations? Briefly describe any non-native plant populations and information source(s): _____	Yes: go to Q.3. No: go to 1c.
1c. Is there significant evidence of human-caused disturbance of the water quality of the system? Degradation of water quality could be evidenced by culverts entering the system, direct road/parking lot runoff, evidence of historic dumping of wastes, oily sheens, extreme eutrophic conditions, livestock use or dead fish etc. Briefly describe: _____	Yes: go to Q.3. No: Possible Category I

Q.2. Regionally Rare Native Wetland Communities The Department of Ecology is developing a methodology for regionally rare native wetland communities. It is not yet available for use.	
Q.3. Irreplaceable Ecological Functions: Does the wetland:	No (for all) go to Q.4.
- have at least 1/2 acre of contiguous peat wetland;	Yes: go to 3a.
- or, have a forested class greater than 1 acre;	Yes: go to 3b.
- or, have characteristics of an estuarine system;	Yes: go to 3c.
- or, have eel grass, floating or non-floating kelp beds?	Yes: go to 3d.
3a. Peat Wetlands. 3a1. Does at least 1/2 acre of the contiguous peat wetland have < 25% areal cover of any combination of species from the list of invasive/exotic species on p.19, and have < 80% areal cover of *Spirea douglasii*?	Yes: Category I No: go to Q.4.
Q.3b. Mature forested wetland. 3b1. Is the average age of dominant trees in the forested wetland > 80 years?	Yes: Category I No: go to 3b2.
3b2. Is the average age of dominant trees in the forested wetland 50-80 years, and is the structural diversity high as characterized by a multi-layer community of trees > 50' tall and trees 20'-49' tall and shrubs and herbaceous groundcover?	Yes: go to 3b3. No: go to Q.5.
3b3. Is > 50% (areal cover) of the dominant plants in one or more layers (canopy, young trees, shrubs, herbs) invasive/exotic plant species from the p.19 list?	Yes: go to Q.5. No: Category I

Q.3c. Estuarine wetlands:	
3c1. Is the wetland listed as National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental or Scientific Reserves designated under WAC 332-30-151?	Yes: Category I No: go to 3c2.
3c2. Is the wetland > 5 acres;	Yes: Category I
or is the wetland 1-5 acres;	Yes: go to 3c3.
or is the wetland < 1 acre?	Yes: go to 3c4.
3c3. Does the wetland meet at least 3 of the following 4 criteria:	Yes: Category I No: Category II
- minimum existing evidence of human related disturbance such as diking, ditching, filling, cultivation, grazing or the presence of non-native plant species (see guidance for definition);	
- surface water connection with tidal saltwater or tidal freshwater;	
- at least 75% of the wetland has a 100' buffer of ungrazed pasture, open water, shrub or forest;	
- has at least 3 of the following features: low marsh; high marsh; tidal channels; lagoon(s); woody debris; or contiguous freshwater wetland.	
3c4. Does the wetland meet all of the four criteria under 3c3. (above)?	Yes: Category II No: Category III
Q.3d. Eel Grass and Kelp Beds:	
3d1. Are eel grass beds present?	Yes: Category I No: go to 3d2.
3d2. Are there floating or non-floating kelp bed(s) present with greater than 50% macro algal cover in the month of August or September?	Yes: Category I No: Category II
Q.4. Category IV wetlands:	
4.1. Is the wetland: less than 1 acre and, hydrologically isolated and, comprised of one vegetated class that is dominated (> 80% areal cover) by one species from the list in guidance p.18.	Yes: Category IV No: go to 4.2
4.2. Is the wetland: less than two acres and, hydrologically isolated, with one vegetated class, and > 90% of areal cover is any combination of species from the list in guidance p.19.	Yes: Category IV No: go to Q.5.

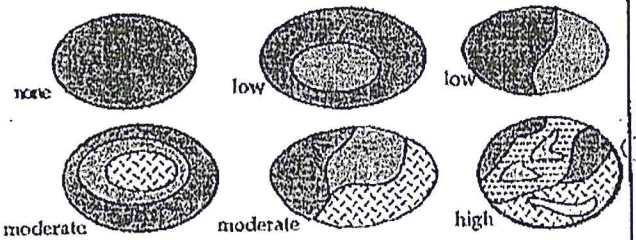
Q.5. Significant habitat value. Answer all questions and enter data requested.		Circle scores that qualify
5a. Total wetland area Estimate area, select from choices in the near-right column, and score in the far column: Enter acreage of wetland here:____acres, and source:_____	acres > 20.00 10 - 19.99 5 - 9.99 1 - 4.99 0.1 - 0.99 <0.1	Yes=6 Yes=5 Yes=4 Yes=3 Yes=2 Yes=1
5b. Wetland classes: Circle the wetland classes below that qualify: Open Water: if the area of open water is > 1/2 acre or > 10% of the total wetland area. Source: _____ Aquatic Beds: if the area of aquatic beds > 10% of the open water area or > 1/2 acre. Emergent: if the area of emergent class is > 1/2 acre or > 10% of the total wetland area. Scrub-Shrub: if the area of scrub-shrub class is > 1/2 acre or > 10% of the total wetland area. Forested: if area of forested class is > 1/2 acre or > 10% of the total wetland area. Add the number of wetland classes, above, that qualify, and then score according to the columns at right. e.g. If there are 4 classes (aquatic beds, open water, emergent & scrub-shrub), you would circle 7 points in the far right column.	# of classes 1..... 2..... 3..... 4..... 5.....	Yes = 1 Yes =3 Yes =5 Yes =7 Yes =10
5c. Plant species diversity. For all wetland classes (at right) that qualify in 5b. above, count the number of different plant species you can find. You do not have to name them. Score in column at far right: e.g. If a wetland has an aquatic bed class with 3 species, an emergent class with 4 species and a scrub-shrub class with 2 species you would circle 2, 2, and 1 in the far column.	# of Class species Aquatic Bed 1-2... " " 3... " " > 3... Emergent 1-2... " 3-4... " > 4... Scrub-Shrub 1-2... " 3-4... " > 4... Forested 1-2... " 3-4... " > 4...	Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3

5

5d. Structural diversity.
If the wetland has a forested class, add 1 point for each of the following:

-trees > 50' tall	Yes=1
-trees 20' - 49' tall	Yes=1
-shrubs	Yes=1
-herbaceous ground cover	Yes=1 NA

5e. Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none?



High=3
Moderate=2
Low=1
None=0 (0)

5f. Habitat features.

Answer questions below, circle features that apply, and score to right:

Is there evidence of current use by beavers?	Yes=3
Is a heron rookery located within 300?	Yes=2
Are raptor nest/s located within 330?	Yes=1
Are there at least 3 standing dead trees (snags) per acre?	Yes=1
Are any of these standing dead trees (snags) > 10" in diameter?	Yes=1
Are there any other perches (wires, poles or posts)?	Yes=1
Are there at least 3 downed logs per acre?	Yes=1 0

5g. Connection to streams. (Score one answer only.)

Is the wetland connected at any time of the year via surface water:

to a perennial stream or a seasonal stream with fish;	Yes=5
or, to a seasonal stream without fish;	Yes=3
or, is not connected to any stream?	Yes=0 5

13

5h. Buffers.

STEP 1 Estimate (to the nearest 5%) the % of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply the %'s by the factor(s) below and enter result in column to right:	STEP 2 Multiply result(s) of step 1: by 1, if buffer width is 26-50'; by 2, if buffer width is 50-100'; by 3, if buffer width is >100'. Enter results below and add subscore:
roads, buildings or parking lots: % x 0 =	0
lawn, grazed pasture, vineyards or annual crops: % 100 x 1 =	100 x 3 = 300
ungrazed grassland or orchards: % x 2 =	x =
open water or native grasslands: % x 3 =	x =
forest or shrub: % x 4 =	x =
	Add buffer total =

STEP 3 Score points according to table at right:

Buffer total	
900-1200	Yes=4
600-899	Yes=3
300-599	Yes=2
100-299	Yes=1 2

5i. Connection to other habitat areas:

- Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor > 100' wide with good forest or shrub cover to any other habitat area?	Yes=5
- Is there a narrow corridor < 100' wide with good cover or a wide corridor > 100' wide with low cover to any other habitat area?	Yes=3
- Is there a narrow corridor < 100' wide with low cover or a significant habitat area within 0.25 mile but no corridor?	Yes=1
- Is the wetland and buffer completely isolated by development and or cultivated agricultural land?	Yes=0 1

NOW: Add the scores circled (for Q.5a - Q.5i above) to get a Total. Total = 13
Is the Total greater than or equal to 22 points. Yes: Category II / No: Category III

C

WETLANDS RATING FIELD DATA FORM

BACKGROUND INFORMATION:

Name of Rater: Ed Sewell Affiliation: _____ Date: 4-16-14

Name of wetland (if known): Wetland C - One Envy

Government Jurisdiction of wetland: _____

Location: 1/4 S: _____ of 1/4 S: _____ SEC: _____ TWNSHP: _____ RNGE: _____

SOURCES OF INFORMATION: (Check all sources that apply)

Site visit: ___ USGS Topo Map: ___ NWI map: ___ Aerial Photo: ___ Soils survey: ___

Other: ___ Describe: _____

WHEN THE FIELD DATA FORM IS COMPLETE ENTER CATEGORY HERE:	III
Q.1. High Quality Natural Heritage Wetland. Circle answers	
Answer this question if you have adequate information or experience to do so. If not find someone with the expertise to answer the questions. Then, if the answer to questions 1a, 1b and 1c are all NO, contact the Natural Heritage program of DNR.	
1a. Is there significant evidence of human-caused changes to topography or hydrology of the wetland? Significant changes could include clearing, grading, filling, logging of the wetland or its immediate buffer, or culverts, ditches, dredging, diking or drainage of the wetland. Briefly describe the changes and your information source/s: graded ditched	(Yes: go to Q.3. No: go to 1b)
1b. Are there populations of non-native plants which are currently present and appear to be invading native populations? Briefly describe any non-native plant populations and information source(s): _____	Yes: go to Q.3. No: go to 1c.
1c. Is there significant evidence of human-caused disturbance of the water quality of the system? Degradation of water quality could be evidenced by culverts entering the system, direct road/parking lot runoff, evidence of historic dumping of wastes, oily sheens, extreme eutrophic conditions, livestock use or dead fish etc. Briefly describe: _____	Yes: go to Q.3. No: Possible Category I

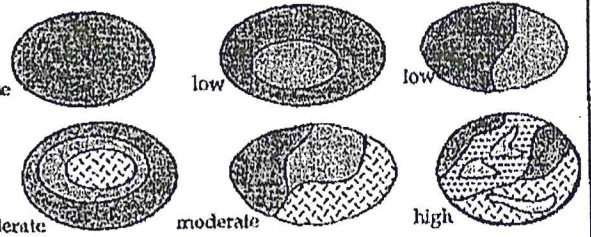
Q.2. Regionally Rare Native Wetland Communities The Department of Ecology is developing a methodology for regionally rare native wetland communities. It is not yet available for use.	
Q.3. Irreplaceable Ecological Functions: Does the wetland:	(No to all: go to Q.4.)
- have at least 1/2 acre of contiguous peat wetland;	Yes: go to 3a.
- or, have a forested class greater than 1 acre;	Yes: go to 3b.
- or, have characteristics of an estuarine system;	Yes: go to 3c.
- or, have eel grass, floating or non-floating kelp beds?	Yes: go to 3d.
3a. Peat Wetlands.	
3a1. Does at least 1/2 acre of the contiguous peat wetland have < 25% areal cover of any combination of species from the list of invasive/exotic species on p.19, and have < 80% areal cover of *Spirea douglasii*?	Yes: Category I No: go to Q.4.
Q.3b. Mature forested wetland.	
3b1. Is the average age of dominant trees in the forested wetland > 80 years?	Yes: Category I No: go to 3b2.
3b2. Is the average age of dominant trees in the forested wetland 50-80 years, and is the structural diversity high as characterized by a multi-layer community of trees > 50' tall and trees 20'-49' tall and shrubs and herbaceous groundcover?	Yes: go to 3b3. No: go to Q.5.
3b3. Is > 50% (areal cover) of the dominant plants in one or more layers (canopy, young trees, shrubs, herbs) invasive/exotic plant species from the p.19 list?	Yes: go to Q.5. No: Category I

Q.3c. Estuarine wetlands.	
3c1. Is the wetland listed as National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental or Scientific Reserves designated under WAC 332-30-151?	Yes: Category I No: go to 3c2.
3c2. Is the wetland > 5 acres;	Yes: Category I
or is the wetland 1-5 acres;	Yes: go to 3c3.
or is the wetland < 1 acre?	Yes: go to 3c4.
3c3. Does the wetland meet at least 3 of the following 4 criteria:	Yes: Category I No: Category II
- minimum existing evidence of human related disturbance such as diking, ditching, filling, cultivation, grazing or the presence of non-native plant species (see guidance for definition);	
- surface water connection with tidal saltwater or tidal freshwater;	
- at least 75% of the wetland has a 100' buffer of ungrazed pasture, open water, shrub or forest;	
- has at least 3 of the following features: low marsh; high marsh; tidal channels; lagoon(s); woody debris; or contiguous freshwater wetland.	
3c4. Does the wetland meet all of the four criteria under 3c3. (above)?	Yes: Category II No: Category III
Q.3d. Eel Grass and Kelp Beds.	
3d1. Are eel grass beds present?	Yes: Category I No: go to 3d2.
3d2. Are there floating or non-floating kelp bed(s) present with greater than 50% macro algal cover in the month of August or September?	Yes: Category I No: Category II
Q.4. Category IV wetlands	
4.1. Is the wetland: less than 1 acre and, hydrologically isolated and, comprised of one vegetated class that is dominated (> 80% areal cover) by one species from the list in guidance p.18.	Yes: Category IV No: go to 4.2
4.2. Is the wetland: less than two acres and, hydrologically isolated, with one vegetated class, and > 90% of areal cover is any combination of species from the list in guidance p.19.	Yes: Category IV No: go to Q.5.

Q.5. Significant habitat value. Answer all questions and enter data requested.		Circle scores that qualify
5a. Total wetland area Estimate area, select from choices in the near-right column, and score in the far column: Enter acreage of wetland here:____acres, and source:_____	acres > 20.00 10 - 19.99 5 - 9.99 1 - 4.99 0.1 - 0.99 <0.1	Yes=6 Yes=5 Yes=4 Yes=3 Yes=2 Yes=1
5b. Wetland classes: Circle the wetland classes below that qualify: Open Water: If the area of open water is > 1/2 acre or > 10% of the total wetland area. Source: _____ Aquatic Beds: If the area of aquatic beds > 10% of the open water area or > 1/2 acre. Emergent: If the area of emergent class is > 1/2 acre or > 10% of the total wetland area. Scrub-Shrub: If area of scrub-shrub class is > 1/2 acre or > 10% of the total wetland area. Forested: If area of forested class is > 1/2 acre or > 10% of the total wetland area.		
Add the number of wetland classes, above, that qualify, and then score according to the columns at right. e.g. If there are 4 classes (aquatic beds, open water, emergent & scrub-shrub), you would circle 7 points in the far right column.	# of classes 1 ..... 2 ..... 3 ..... 4 ..... 5	Yes=1 Yes=3 Yes=5 Yes=7 Yes=10
5c. Plant species diversity. For all wetland classes (at right) that qualify in 5b. above, count the number of different plant species you can find. You do not have to name them. Score in column at far right: e.g. If a wetland has an aquatic bed class with 3 species, an emergent class with 4 species and a scrub-shrub class with 2 species you would circle 2, 2, and 1 in the far column.	Class # of species Aquatic Bed 1-2... " " 3... " " >3... Emergent 1-2... " 3-4... " >4... Scrub-Shrub 1-2... " 3-4... " >4... Forested 1-2... " 3-4... " >4...	Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3

C

5

5d. Structural diversity. If the wetland has a forested class, add 1 point for each of the following: -trees > 50' tall ..... -trees 20'- 49' tall ..... -shrubs ..... -herbaceous ground cover, ...	Yes=1 Yes=1 Yes=1 Yes=1 NA
5e. Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none? 	High=3 Moderate=2 Low=1 None=0 0
5f. Habitat features. Answer questions below, circle features that apply, and score to right: Is there evidence of current use by beavers ? ..... Is a heron rookery located within 300'? ..... Are raptor nest/s located within 300'? ..... Are there at least 3 standing dead trees (snags) per acre? ..... Are any of these standing dead trees (snags) > 10" in diameter? ..... Are there any other perches (wires, poles or posts)? ..... Are there at least 3 downed logs per acre?	Yes=3 Yes=2 Yes=1 Yes=1 Yes=1 Yes=1 Yes=1 0
5g. Connection to streams. (Score one answer only.) Is the wetland connected at any time of the year via surface water: to a perennial stream or a seasonal stream with fish; ..... or, to a seasonal stream without fish; ..... or, is not connected to any stream?	Yes=5 Yes=3 Yes=0 5

5h. Buffers. STEP 1 Estimate (to the nearest 5%) the % of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply the %'s by the factor(s) below and enter result in column to right:	STEP 2 Multiply result(s) of step 1: by 1, if buffer width is 26-50'; by 2, if buffer width is 50-100'; by 3, if buffer width is >100'. Enter results below and add subscore:
roads, buildings or parking lots: % ___ x 0 =	0
lawn, grazed pasture, vineyards or annual crops: % 60 x 1 =	60 x 3 = 180
ungrazed grassland or orchards: % 40 x 2 =	80 x 3 = 240
open water or native grasslands: % ___ x 3 =	___ x ___ = ___
forest or shrub: % ___ x 4 =	___ x ___ = ___
	Add Buffer total = 420
STEP 3. Score points according to table at right :	Buffer total 900-1200... Yes=4 600-899.... Yes=3 300-599.... Yes=2 100-299.... Yes=1 2
5i. Connection to other habitat areas: - Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor > 100' wide with good forest or shrub cover to any other habitat area?	Yes =5
- Is there a narrow corridor < 100' wide with good cover or a wide corridor > 100' wide with low cover to any other habitat area?	Yes=3
- Is there a narrow corridor < 100' wide with low cover or a significant habitat area within 0.25 mile but no corridor?	Yes=1
- Is the wetland and buffer completely isolated by development and or cultivated agricultural land?	Yes=0 1
NOW: Add the scores circled (for Q.5a - Q.5i above) to get a Total ..... Is the Total greater than or equal to 22 points	Total = 13 Yes=Category=II No=Category III

WETLAND RATING FORM – EASTERN WASHINGTON

Wetland Name: Wetlands A-C Date: 5-5-14

Name of wetland (if known): One Energy Ospray

Location: SEC: ___ TWNSHP: ___ RNGE: ___ (attach map with outline of wetland to rating form)

Person(s) Rating Wetland: Ed Sewall Affiliation: _____ Date of site visit: 4-7-14

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV___

Category I = Score >70	Score for "Water Quality" Functions: 12
Category II = Score 51-69	Score for Hydrologic Functions: 16
Category III = Score 30-50	Score for Habitat Functions: 7
Category IV = Score < 30	TOTAL score for functions: 35

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ III___ Does not Apply___

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

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Vernal Pool		Depressional	
Alkali		Riverine	
Natural Heritage Wetland		Lake-fringe	
Bog		Slope	
Forest			
None of the above			

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

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

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
A1. *Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered plant or animal species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
A2. *Has the wetland been documented as habitat for any State listed Threatened or Endangered plant or animal species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database.		✓
A3. Does the wetland contain individuals of Priority species listed by the WDFW for the state?		✓
A4. Does the wetland have a local significance in addition to its functions. For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		✓

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 20 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Eastern Washington

Wetland Name: Wetland A Date: 5-5-14

1. Does the wetland meet both of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);
   ___At least 30% of the open water area is deeper than 3 m (10 ft)?

   NO – go to Step 2 YES – The wetland class is **Lake-fringe (lacustrine fringe)**

2. Does the wetland meet all of the following criteria?
   ___The wetland is on a slope (*slope can be very gradual*),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   ___The water leaves the wetland **without being impounded?**
   NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than a foot deep).*

   NO - go to Step 3 YES – The wetland class is **Slope**

3. Is the wetland in a valley or stream channel where it gets inundated by overbank flooding from that stream or river? In general, the flooding should occur at least once every ten years to answer "yes." *The wetland can contain depressions that are filled with water when the river is not flooding.*

   NO - go to Step 4 YES – The wetland class is **Riverine**

4. Is the wetland in a topographic depression, outside areas that are inundated by overbank flooding, in which water ponds, or is saturated to the surface, at some time of the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

   NO – go to Step 5 YES – The wetland class is **Depressional**

5. Your wetland seems to be difficult to classify. 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. Sometimes we find characteristics of several different hydrogeomorphic classes within one wetland boundary. If you have a wetland with several HGM classes present within its boundaries use the following table to identify the appropriate class to use for the rating system. 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 being rated.

HGM Classes Within One Delineated Wetland Boundary	Class to Use in Rating if area of this class >10% total
Slope + Riverine	Riverine
Slope – Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine (riverine is within boundary of depression)	Depressional
Depressional + Lake-fringe	Depressional

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

D	Depressional Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that the wetland functions to improve water quality	
D	**D 1.0 Does the wetland have the potential to improve water quality?** *(see p. 32 in text)*	
D	D 1.1 Characteristics of surface water flows out of the wetland: Wetland has no surface water outlet - points = 5 Wetland has an intermittently flowing , or highly constricted, outlet – points = 3 Wetland has a permanently flowing surface outlet – points = 1	5
D	D 1.2 The soil 2 inches below the surface is clay, organic, or smells anoxic (hydrogen sulfide or rotten eggs). YES points = 3 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (**emergent, shrub, and/or forest**): Wetland has persistent, ungrazed, vegetation for > 2/3 of area points = 5 Wetland has persistent, ungrazed, vegetation from 1/3 to 2/3 of area points = 3 Wetland has persistent, ungrazed vegetation from 1/10 to < 1/3 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0	0
D	D 1.4 Characteristics of seasonal ponding or inundation. *This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.* Area seasonally ponded is > ½ total area of wetland points = 3 Area seasonally ponded is ¼ - ½ total area of wetland points = 1 Area seasonally ponded is <¼ total area of wetland points = 0 NOTE: *See text for indicators of seasonal and permanent inundation/flooding.*	1
D	**Total for D 1** *Add the points in the boxes above*	6
D	**D 2.0 Does the wetland have the opportunity to improve water quality?** *(see p.38)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants.* — Grazing in the wetland or within 150ft — Wetland intercepts groundwater within the Reclamation Area — Untreated stormwater flows into wetland — Tilled fields or orchards within 150 feet of wetland — Water from a stream or culvert flows into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Other YES multiplier is 2 NO multiplier is 1	multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by the multiplier in D2 *Record score on p. 1 of field form*	12

D	Depressional Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	
D	**D 3.0 Does the wetland have the potential to reduce flooding and stream erosion?** *(see p. 39)*	
D	D 3.1 Characteristics of surface water flows out of the wetland: Wetland has no surface water outlet — points = 8 Wetland has an intermittently flowing, or highly constricted, outlet — points = 4 Wetland has a permanently flowing surface outlet — points = 0	8
D	D 3.2 Depth of storage during wet periods: *Estimate the height of ponding above the surface of the wetland (see text for description of measuring height). In wetlands with permanent ponding, the surface is the lowest elevation of "permanent" water)* Marks of ponding are at least 3 ft above the surface — points = 8 The wetland is a "headwater" wetland" *(see p. 39)* — points = 6 Marks are 2 ft to < 3 ft from surface — points = 6 Marks are 1 ft to < 2 ft from surface — points = 4 Marks are 6 in to < 1 ft from surface — points = 2 No marks above 6 in. or wetland has only saturated soils — points = 0	0
D	**Total for D 3** *Add the points in the boxes above*	8
D	**D 4.0 Does the wetland have the opportunity to reduce flooding and erosion?** *(see p. 42)* *Answer NO if the major source of water is groundwater, irrigation return flow, or water levels in the wetland are controlled by a reservoir.* Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ YES (multiplier is 2) NO multiplier is 1	multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D3 by the multiplier in D4 *Record score on p. 1 of field form*	16

Comments

R	Riverine Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that the wetland functions to improve water quality	
R	**R 1.0 Does the wetland have the potential to improve water quality?** *(see p. 45)*	
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover > 1/3 area of wetland — points = 6 Depressions cover > 1/10 area of wetland — points = 3 Depressions present but cover < 1/10 area of wetland — points = 1 No depressions present — points = 0	
R	R 1.2 Characteristics of the vegetation in the wetland: Forest or shrub > 2/3 the area of the wetland — points = 10 Forest or shrub 1/3 – 2/3 area of the wetland — points = 5 Ungrazed, emergent plants > 2/3 area of wetland — points = 5 Ungrazed emergent plants 1/3 – 2/3 area of wetland — points = 2 Forest, shrub, and ungrazed emergent < 1/3 area of wetland — points = 0	
R	**Total for R1** *Add the points in the boxes above*	
R	**R 2.0 Does the wetland have the opportunity to improve water quality?** *(see p.46)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants.* — Grazing in the wetland or within 150ft — Wetland intercepts groundwater within the Reclamation Area — Untreated stormwater flows into wetland — Tilled fields or orchards within 150 feet of wetland — Water flows into wetland from a stream or culvert that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential or urban areas are within 150 ft of wetland — The river or stream that floods the wetland has a contributing basin where human activities have raised the levels of sediment, toxic compounds or nutrients in the river water above water quality standards — Other_____ YES multiplier is 2 NO multiplier is 1	multiplier
R	**TOTAL - Water Quality Functions** Multiply the score from R1 by the multiplier in R2 *Record score on p. 1 of field form*	

Comments

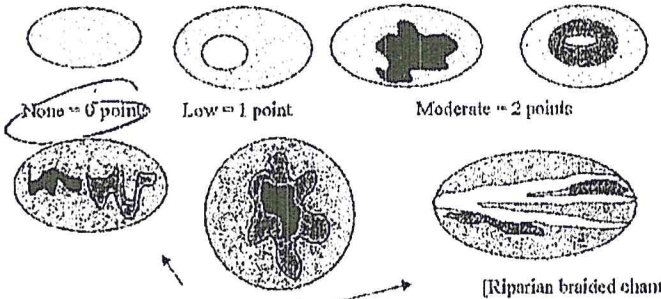
S	Slope Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
S	**S 3.0 Does the wetland have the potential to reduce flooding and stream erosion?** *(see p.59)*	
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland.* Dense, uncut, rigid vegetation covers > 90% of the area of the wetland, (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows) points = 6 Dense, uncut, rigid vegetation > 1/2 – 90% area of wetland points = 3 Dense, uncut, rigid vegetation > 1/4 – 1/2 area points = 1 More than 1/4 of area is grazed, mowed, filled or vegetation is not rigid points = 0	
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 NO points = 0	
S	**Total for S3** *Add the points in the boxes above*	
S	**S 4. 0 Does the wetland have the opportunity to reduce flooding and erosion?** *(see p.61)* *Answer NO if the major source of water is irrigation return flow (e.g. a seep that is on the downstream side of a dam or at the base of an irrigated field.* Answer YES if the wetland is in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* — Wetland has surface runoff that can cause flooding problems downgradient — Other_____ YES multiplier is 2 NO multiplier is 1	multiplier
S	**TOTAL - Hydrologic Functions** Multiply the score from S3 by the multiplier in S4 *Record score on p. 1 of field form*	

Comments

These questions apply to wetlands of all HGM classes.	Points
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat	
H 1. Does the wetland have the potential to provide habitat for many species?	
H 1.1 Vegetation structure *(see p.62)* *Check the types of vegetation present if the type covers more than 10% of the area of the wetland or ¼ acre.* ___Aquatic bed ___Emergent plants 0-12 inches high (0 – 30 cm) ___Emergent plants >12 – 40 inches high (>30 – 100cm) ___Emergent plants > 40 inches high (> 100 cm) ___Scrub/shrub (areas where shrubs have >30% cover) ___Forested (areas where trees have >30% cover) *Add the number of vegetation types that qualify. If you have:* 4-6 types *record* points = 3 3 types points = 2 2 types points = 1 1 type points = 0	0
H 1.2. Is one of the vegetation types "aquatic bed?" *(see p. 64)* YES = 1 point NO = 0 points	0
H 1.3. Surface Water *(see p.65)* H 1.3.1 Does the wetland have areas of "open" water (without emergent or shrub plants) over at least ¼ acre or 10% of its area during the spring (March – early June) OR in early fall (August – end of September)? *Note: answer YES for Lake-fringe wetlands* YES = 3 points & go to H 1.4 NO = go to H 1.3.2 H 1.3.2 Does the wetland have an intermittent or permanent stream within its boundaries, or along one side, that has an unvegetated bottom *(answer yes only if H 1.3.1 is NO)*? YES = 3 points NO = 0 points	0
H 1.4. Richness of Plant Species *(see p. 66)* Count the number of plant species in the wetland that cover at least 10 ft². *(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 Eurasean Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites ,Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)* If you counted: > 9 species points = 2 4-9 species points = 1 # of species < 4 species points = 0 points	0

H 1.5. Interspersion of habitats *(see p. 67)*

Decided from the diagrams below whether interspersion between types of vegetation (described in H 1.1), or vegetation types and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.



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

High = 3 points [Riparian braided channel]

NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high". **0**

H 1.6. Special Habitat Features: *(see p. 68)*

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

___ Loose rocks larger than 4" or large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.

___ Cattails or bulrushes are present within the wetland.

___ Standing snags (diameter at the bottom > 4 inches) in the wetland or within 30 m (100 ft) of the edge.

___ Emergent or shrub vegetation in areas that are permanently inundated/ponded. *The presence of "yellow flag" Iris is a good indicator of vegetation in areas permanently 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

1 Invasive species cover less than 20% in each stratum of vegetation

Maximum score possible = 6 **1**

TOTAL Potential to provide habitat *Add the scores in the column above* **1**

Comments

H 2.0 Does the wetland have the opportunity to provide habitat for many species?

H 2.1 Buffers *(see p. 71)*

Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."

— 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No developed areas within undisturbed part of buffer. **(relatively undisturbed also means no-grazing)** **Points = 5**

— 330 ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4**

— 170ft (50 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4**

— 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3**

— 170ft (50 m) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3**

If buffer does not meet any of the criteria above

— No paved areas (except paved trails) or buildings within 80ft (25 m) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2**

— No paved areas or buildings within 170ft (50m) of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2**

— Heavy grazing in buffer. **Points = 1**

— Vegetated buffers are <6.6ft wide (2m) for more than 95% of the circumference (e.g . tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0**

— Buffer does not meet any of the criteria above. **Points = 1** **1**

H 2.2 Wet Corridors *(see p. 72)*

H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? *(dams, heavily used gravel roads, paved roads, fields tilled to edge of stream, or pasture to edge of stream are considered breaks in the corridor).*

YES = 4 points (go to H 2.3) NO = go to H 2.2.2

H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken, vegetated corridor, at least ¼ mile long with water flowing seasonally, **OR** a lake-fringe wetland without a "wet" corridor, **OR** a riverine wetland without a surface channel connecting to the stream?

YES = 2 points (go to H 2.3) NO go to H 2.2.3

H 2.2.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake *(do not include man-made ditches)*?

YES = 1 point NO = 0 points **1**

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 74)*
Which of the following priority habitats are within 330ft (100m) of the wetland?
(see text for a more detailed description of these priority habitats)

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

___ **Aspen Stands:** Pure or mixed stands of aspen greater than 2 acres.

___ **Cliffs:** Greater than 25 ft high and occurring below 5000 ft.

___ **Old-growth forests:** (east of Cascade crest): In general, stands will be >150 years of age, with 10 trees/acre that are > 21 in dbh, and 1 - 3 snags/acre > 12-14 in diameter.

___ **Mature forests:** Stands with average diameters exceeding 21 in dbh; crown cover may be less that 100%; decay, 80 - 160 years old east of the Cascade crest.

___ **Prairies and Steppe:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

___ **Shrub-steppe:** Tracts of land consisting of plant communities with one or more layers of perennial grasses and a conspicuous but discontinuous layer of shrubs.

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

___ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

___ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

___ **Urban Natural Open Space:** A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

___ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

If wetland has **2 or more** Priority Habitats = **4 points**
If wetland has **1** Priority Habitat = **2 points**
No Priority habitats = 0 points

2

Comments

H 2.4 Landscape *(choose the one description of the landscape around the wetland that best fits) (see p. 76)*

— The wetland is in an area where annual rainfall is less than 12 inches, and its water regime is not influenced by irrigation practices, dams, or water control structures. *(Generally, this means outside boundaries of reclamation areas, irrigation district, or reservoirs)* points = 5

— There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing in the connection or an open water connection along a lake shore without heavy boat traffic are OK, but connections should NOT be bisected by paved roads, fill, fields, heavy boat traffic or other development).

✓ points = 5

— There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed? points = 2

— There is at least 1 wetland within ½ mile. points = 1

— Does not meet any of the four criteria above points = 0

2

H 2. TOTAL Score - opportunity for providing habitat *Add the scores in the column above* — 7

H 3.0 Does the wetland have indicators that its ability to provide habitat is reduced?

H 3.1 Indicator of reduced habitat functions *(see p. 75)*
Do the areas of open water in the wetland have a resident population of carp (see text for indicators of the presence of carp)? *(NOTE: This question does not apply to reservoirs with water levels controlled by dams, such as the reservoirs on the Columbia and Snake Rivers)*

Points will be subtracted

YES = - 5 points NO = 0 points

0

Total Score for Habitat Functions – *add the points for H 1, H 2, and H 3 and record the result on p. 1* — 7

Comments

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.

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	Category
SC 1.0 Vernal pools *(see p. 79)* Is the wetland less than 4000 ft², and does it meet at least two 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. *NOTE: If you find perennial, "obligate", wetland plants the wetland is probably NOT a vernal pool* — The soil in the wetland are shallow (<1ft deep (30 cm)) and is underlain by an impermeable layer such as basalt or clay. — Surface water is present for less than 12) days during the "wet" season. YES = Go to SC 1.1 NO - *not a vernal pool* SC 1.1 Is the vernal pool relatively undisturbed in February and March? YES = Go to SC 1.2 NO - *categorize based on functions*	
SC 1.2 Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 miles (other wetlands, rivers, lakes etc.)? YES = Category II NO = Category III	Cat. II Cat. III
SC 2.0 Alkali wetlands *(see p. 81)* Does the wetland meets one of the following two criteria? — The wetland has a conductivity > 3.0 mS/cm. — The wetland has a conductivity between 2.0 - 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as "alkali" species (see Table 2 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. **OR** does the wetland meets two of the following three sub-criteria? — Salt encrustations around more than 80% of the edge of the wetland — More than ¾ of the plant cover consists of species listed on Table 2 — 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. YES = Category I NO - *categorize based on functions*	Cat. I

SC 3.0 Natural Heritage Wetlands *(see p. 81)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 3.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ___ or accessed from WNHP/DNR web site ___ YES ___ -- contact WNHP/DNR (see p. 79) and go to SC 3.2 NO ___ SC 3.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ___	Cat. I
SC 4.0 Bogs *(see p. 82)* Does the wetland (or part of the wetland) meet both the criteria for soils and vegetation in bogs. *Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.* SC 4.1. Does the wetland have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to SC 4.3 No - go to SC 4.2 SC 4.2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?? Yes - go to SC 4.3 No - Is not a bog for rating SC 4.3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? Yes -- Category I bog No - go to Q. 4.4 *NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.* SC 4.4. Is the wetland forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? Yes – Category I bog No - *categorize based on functions*	Cat. I Cat. I

SC 5.0 Forested Wetlands *(see p. 85)* Does the wetland have an area of forest (*you should have identified a forested class, if present, in question H 1.1*) rooted within its boundary that meet at least one of the following three criteria? — The wetland is within the "100 year" floodplain of a river or stream — aspen (*Populus tremuloides*) are a dominant or co-dominant of the "woody" vegetation. (*Dominants means it represents at least 50% of the cover of woody species, co-dominant means it represents at least 20% of the total cover of woody species*) — There is at least ¼ acre of trees (even in wetlands smaller than 2.5 acres) that are "mature" or "old-growth" according to the definitions for these priority habitats developed by WDFW *(see p. 83)* YES = go to SC 5.1 NO = *categorize based on functions*	
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 Slow growing trees are: western red cedar (*Thuja plicata*), Alaska yellow cedar (*Chamaecyparis nootkatensis*), pine spp. mostly "white" pine (*Pinus monticola*), western hemlock (*Tsuga heterophylla*), Englemann spruce (*Picea engelmannii*). YES = Category I NO = go to SC 5.2	Cat. I
SC 5.2 Does the wetland have aspen (*Populus tremuloides*) as a dominant or co-dominant species in the category of woody species? YES = Category I NO = go to SC 5.3	Cat. I
SC 5.3 Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are fast growing species. Fast growing species are: Alders – red (*Alnus rubra*), thin-leaf (*A. tenuifolia*) Cottonwoods -- narrow-leaf (*Populus angustifolia*), black (*P. balsamifera*) Willows- peach-leaf (*Salix amygdaloides*), Sitka (*S. sitchensis*), Pacific (*S. lasiandra*), Aspen - (*Populus tremuloides*), Water-Birch (*Betula occidentalis*) YES = Category II NO = go to SC 5.5	Cat. II
SC 5.5 Is the forested component of the wetland within the "100 year floodplain" of a river or stream? YES = Category II NO = *categorize based on functions*	Cat. II
Category of wetland based on Special Characteristics If you answered No for all you enter "Not Applicable" on the right	NA

NW corner of site

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: One Energy - Osprey City/County: Kittitas Sampling Date: 4-8-14

Applicant/Owner: State: WA Sampling Point: DP1

Investigator(s): Ed Sewall Section, Township, Range: S20 T18N R18E

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Weirman 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 ✓ No	Is the Sampled Area within a Wetland? Yes No ✓
Hydric Soil Present?	Yes No ✓	
Wetland Hydrology Present?	Yes No ✓	

Remarks:
- site is diked from historic connection to Dry Creek
- site is ditched
- site is grazed & disked occasionally
- wheat irrigated

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Festuca arundinacea	90		FAC-
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Sampling Point: DP

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
16	10YR 2/2		clay loam					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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 indicators

wetland A

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: One Enough - Osprey City/County: Kittitas Sampling Date: 4-8-14

Applicant/Owner: State: WA Sampling Point: DP2

Investigator(s): Ed Sewall Section, Township, Range: S20 T18N R18E

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Weirman 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 ✓ No ___	Is the Sampled Area within a Wetland?	Yes ✓ No ___
Hydric Soil Present?	Yes ✓ No ___		
Wetland Hydrology Present?	Yes ✓ No ___		

Remarks:
- site is diked from historic connection to Dry Creek
- site is ditched
- site is grazed & disked occasionally
- wheel irrigated

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Agrostis spp	50		FAC
2. Carex spp.	50		FAC-OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: DP 2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
4	10YR 2/2						clay loam	
16	7.5YR 2.5/1		cmd				"	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR O)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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): - 8"

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

north of s

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: One Energy - Osprey City/County: Kittitas Sampling Date: 4-8-14

Applicant/Owner: State: WA Sampling Point: DP#3

Investigator(s): Ed Sewall Section, Township, Range: S20 T18N R18E

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Weirman 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 ✓ No	Is the Sampled Area within a Wetland? Yes No ✓
Hydric Soil Present?	Yes No ✓	
Wetland Hydrology Present?	Yes No	

Remarks:
- site is diked from historic connection to Dry Creek
- site is ditched
- site is grazed + disked occasionally
- wheat irrigated

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Festuca arundinacea	80		FAC
2. J. balticus	10		FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

Sampling Point: DP#3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
16	10YR 2/2						clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR G)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

no indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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 indicators

wet B

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: One Enough - Osprey City/County: Kittitas Sampling Date: 4-8-14

Applicant/Owner: State: WA Sampling Point: DP 4

Investigator(s): Ed Sewall Section, Township, Range: S20 T18N R18E

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Weirman 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 ✓	No	Is the Sampled Area within a Wetland? Yes ✓ No
Hydric Soil Present?	Yes ✓	No	
Wetland Hydrology Present?	Yes ✓	No	

Remarks:
- site is diked from historic connection to Dry Creek
- site is ditched
- site is grazed + disked occasionally
- wheat irrigated

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Carex spp	60		OBL
2. Festuca arundinacea	20		FAC
3. Phleum pratense	10		FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

Sampling Point: DP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
16	10YR 2/2		Comm. med distinct				clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR G)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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): ~6"

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

wet c

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: One Energy - Osprey City/County: Kittitas Sampling Date: 4-8-14

Applicant/Owner: State: WA Sampling Point: DP5

Investigator(s): Ed Sewall Section, Township, Range: S20 T18N R18E

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Weirman 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 ✓	No	Is the Sampled Area within a Wetland? Yes ✓ No
Hydric Soil Present?	Yes ✓	No	
Wetland Hydrology Present?	Yes	No	

Remarks:
- site is diked from historic connection to Dry Creek
- site is ditched
- site is grazed + disked occasionally
- wheel irrigated

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Phalaris arundinacea	80		FACW
2. Carex spp	20		FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum % Cover of Biotic Crust

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

Sampling Point: DP5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
16	10YR 2/2		cmd1				cly lm	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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): ~10"

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

Control East

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: One Enough - Osprey City/County: Kittitas Sampling Date: 4-8-14

Applicant/Owner: State: WA Sampling Point: DPC

Investigator(s): Ed Sewall Section, Township, Range: S20 T18N R18E

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Weirman 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 ✓	No	Is the Sampled Area within a Wetland? Yes No
Hydric Soil Present?	Yes	No ✓	
Wetland Hydrology Present?	Yes	No ✓	

Remarks:
- site is diked from historic connection to Dry Creek
- site is ditched
- site is grazed + disked occasionally
- wheel irrigated

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Festuca arundinacea	80		FAC
2. Juncus balticus	20		FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

Sampling Point: DP6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
14	10YR 3/3						loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

no indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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 indicators