

MEADOW SPRINGS, STARLITE ESTATES, AND TAMARACK RIDGE

Wetland Report

RECEIVED

SEP 21 2007

Kititas County
CDS

Prepared for:

September 2007

Barghausen Consulting Engineers, Inc.



PSA-10-07-01

TABLE OF CONTENTS

1.0	PROJECT AUTHORIZATION AND SCOPE OF WORK.....	1
2.0	SITE DESCRIPTION.....	1
3.0	WETLAND DEFINITION AND REGULATIONS.....	1
4.0	METHODS.....	1
4.1	REVIEW OF EXISTING INFORMATION.....	2
4.2	ON-SITE INVESTIGATION.....	2
4.2.1	<i>Determining the Presence of Wetlands and Delineating Wetland Boundaries</i>	2
4.2.2	<i>Classifying Wetlands</i>	3
4.2.3	<i>Assessing Wetland Functions</i>	3
5.0	FINDINGS.....	3
5.1	EXISTING INFORMATION.....	3
5.2	WETLAND DETERMINATIONS.....	4
5.2.1	<i>Wetland A</i>	4
5.2.2	<i>Wetland B</i>	5
5.2.3	<i>Wetland C</i>	6
5.2.4	<i>Wetland D</i>	6
5.2.5	<i>Wetland F</i>	7
5.3	STREAM DESCRIPTION.....	7
6.0	REGULATORY IMPLICATIONS.....	8
6.1	FEDERAL REGULATIONS.....	8
6.2	STATE REGULATIONS.....	8
6.3	LOCAL REGULATIONS.....	8
6.3.1	<i>Wetlands</i>	9
6.3.2	<i>Streams</i>	10
7.0	IMPACTS AND MITIGATION.....	10
7.1	WETLAND IMPACTS.....	10
7.2	STREAM IMPACTS.....	11
7.3	BUFFER IMPACTS.....	11
8.0	LIMITATIONS.....	12
9.0	GLOSSARY.....	13
10.0	REFERENCES.....	19
	FIGURES AND PHOTOGRAPHS.....	21
	APPENDIX A: METHODS USED TO EVALUATE WETLAND CHARACTERISTICS.....	A-1
	APPENDIX B: WETLAND DETERMINATION DATA SHEETS.....	B-1
	APPENDIX C: WETLAND RATING FORMS.....	C-1

LIST OF FIGURES

Figure 1 - Vicinity Map

Figure 2 - National Wetland Inventory

Figure 3 - Wetland and Stream Location Map and Site Layout

1.0 PROJECT AUTHORIZATION AND SCOPE OF WORK

At the request of Barghausen Consulting Engineers, Inc. (BCE), ESA Adolfson (Adolfson) performed wetland delineations and prepared this technical report for the Meadow Springs, Starlite Estates, and Tamarack Ridge development projects in unincorporated Kittitas County, Washington. All rights-of-entry to the subject properties for the purpose of conducting this study were granted by the property owner, Sapphire Skies, LLC. The boundaries of the study area were established based upon parcel boundaries, project site plans and a description by BCE staff.

The scope of work for this project includes wetland determinations, delineations, ratings, an assessment of wetland functions, and an assessment of wetland impacts from the proposed developments. A brief discussion of regulatory implications and permitting considerations is also included in this report. The project area included Kittitas County parcels 19148, 21139, 21140, 21141, 21142, 735334, 015434, and 025434. Adolfson did not evaluate all proposed access roads or utility corridors associated with the developments.

2.0 SITE DESCRIPTION

The proposed development projects are located southwest of the City of Cle Elum and accessed from Pasco Road and the Westside Road, in Kittitas County, Washington (Sections 1 and 19, Township 19 North, Range 14 East) (Figure 1). The combined area is approximately 225 acres is positioned along undulating ridges and valleys. A BPA powerline easement is located in the middle of the property in an east-west orientation.

3.0 WETLAND DEFINITION AND REGULATIONS

The characteristics of an area that result in its classification as "wetland" have been formally defined by federal and state agencies, as described in Appendix A. Numerous federal, state, and local regulations govern development and other activities in or near wetlands; at each level, there are typically several agencies charged with such powers (Ecology, 1994). Specific regulatory implications concerning the subject property are summarized later in this report.

4.0 METHODS

Two levels of investigation were conducted for the analysis of wetlands on the subject property: a review of existing information and an on-site investigation.

4.1 Review of Existing Information

A review of existing literature, maps, and other materials was conducted to identify wetlands or site characteristics indicative of wetlands on the project site. These sources can only indicate the likelihood of the presence of wetlands; actual wetland determinations must be based upon data obtained from field investigations.

Several documents were reviewed:

- Kittitas County Mapsifter, accessed at <http://www.co.kittitas.wa.us/cds/default.asp> ;
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) database, July 16, 2007;
- National Wetland Inventory (NWI) Map, Cle Elum (USFWS, 1987);
- *Draft Soil Survey of Kittitas County*, Washington (NRCS, 2007); and
- Aerial orthophotographs (USDA, National Agriculture Imagery Program, 2007).

4.2 On-site Investigation

4.2.1 Determining the Presence of Wetlands and Delineating Wetland Boundaries

Methods defined in the *Washington State Wetlands Identification and Delineation Manual* (Ecology, 1997), a manual consistent with the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987), were used to determine the presence and extent of wetlands on the subject property. Washington state and all local governments must use the state delineation manual to implement the Shoreline Management Act and/or the local regulations adopted pursuant to the Growth Management Act. The methodology outlined in the manual is based upon three essential characteristics of wetlands: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology. Field indicators of these three characteristics must all be present in order to determine that an area is a wetland (unless problem areas or atypical situations are encountered).

The "routine on-site determination method" was used to determine the wetland boundaries. The routine method is used for areas equal to or less than five acres in size, or for larger areas with relatively homogeneous vegetative, soil, and hydrologic properties.

Formal data plots were established where information regarding each of the three wetland parameters (vegetation, soils, and hydrology) was recorded. This information was used to distinguish wetlands from non-wetlands. Wetland boundaries were identified with sequentially numbered colored flagging. Data plot locations were also marked with colored flagging. Visual observations were made of off-site areas from the site boundaries to determine if potential wetlands occur and if buffer areas would encumber project development.

The methods used to assess wetland characteristics are described in greater detail in Appendix A.

4.2.2 Classifying Wetlands

Two classification systems are commonly used to describe wetlands: 1) the hydrogeomorphic (HGM) system developed by the Corps and 2) the Cowardin habitat system developed by the U.S. Fish and Wildlife Service (USFWS). The HGM system describes wetlands in terms of their position in the landscape and the movement of water in the wetland (Brinson, 1993). The USFWS classification system (Cowardin *et al.*, 1979) describes wetlands in terms of their vegetation communities; these include, for example, emergent, scrub-shrub, and forested community types.

4.2.3 Assessing Wetland Functions

Wetlands play important roles that provide valuable benefits to the environment and society. Because detailed scientific knowledge of wetland functions is limited, evaluations of the functions of individual wetlands are somewhat qualitative and dependent upon professional judgment. For this project, wetland functions were assessed using the *Washington State Wetland Rating System for Eastern Washington – Revised* (Hruby, 2007).

5.0 FINDINGS

The following sections describe the wetland habitats identified during the field investigations. The investigations were conducted on June 7, 8, 11, and 12, 2007 by Adolfson scientists Ilon Logan, Adam Merrill, and Lara Thoreson. Twenty-six data plots were established on the site. Data forms for each of the formal data plots are provided in Appendix B.

5.1 Existing Information

The NWI identifies a palustrine scrub-shrub (PSS) temporarily flooded wetland located in the middle of the study area near the southern boundary (Figure 2). The NWI also identifies several palustrine emergent (PEM) temporarily flooded wetlands located northwest, southeast, and west of the PSS wetland. NWI wetland mapping shows these wetlands continuing off-site to the west and east.

The *Draft Soil Survey of Kittitas County* (2007) identifies six soil types in the project area: 1) Bertolotti ashy sandy loam, 2) Dystroxerepts, 3) Quicksell loam, 4) Haplosaprists, 5) Volperie very paragravelly ashy sandy loam, and 6) Volperie very paragravelly ashy sandy loam (NRCS, 2007). Bertolotti, Dystroxerepts, and Volperie soil types are all classified as well-drained and are not considered to be hydric soils according to the *Draft Survey of Kittitas Hydric Soil List for Washington* (NRCS, 2007). Quicksell is a somewhat poorly drained soil and is not considered to be hydric; however, somewhat poorly drained soils by definition are found to have water tables at or near the surface for extended periods of time during the growing season, which can be

sufficient for soils to form hydric characteristics. Haplosaprists are silty clay loam soils that area very poorly drained and considered to be hydric.

5.2 Wetland Determinations

Five wetlands were identified in the project area; these areas are referred to as Wetlands A, B, C, D and F. Figure 3 shows the locations of the wetlands and data plots in the study area. One unnamed stream is present in the project area that occurs within the boundaries of Wetland A. Several ditches are present in the project area that appear to have been excavated for agricultural purposes. A main ditch extends generally with the BPA powerline easement in an east-west direction. The ditch conveys flow to the east and discharges to a stream within the boundaries of Wetland A. A north-south ditch is present within Wetland D and connects the main ditch within the BPA easement. The flagged wetland boundaries were professionally surveyed by BCE.

5.2.1 Wetland A

Overview. Wetland A covers the majority of parcel 025434 and a portion of parcel 015434, and continues offsite to the south and east (Figure 3). The on-site portion of Wetland A is 32.5 acres. The vegetation communities of Wetland A are palustrine forested (PFO), PSS, and PEM (Photos 1 and 2). Two upland meadow areas are located within the wetland near the southeastern property boundary. Data plots 2, 3, 5, 13, and 15 characterize Wetland A.

Hydrology. The main sources of water for Wetland A appear to be a seasonally high groundwater table, hillside seeps, and surface water runoff from the surrounding area. At the time of the June field investigation, soils were saturated to the surface throughout the wetland, and several areas of seasonal ponding were observed. A unnamed perennial stream flows west to east through the northern portion of the wetland, inside the wetland boundary. The onsite portion of Wetland A drains to the east via seasonal drainage channels and the stream described above.

Soils. The observed soil types varied throughout Wetland A and were generally not consistent with the mapped soil types (Bertolotti ashy sandy loam and Quicksell loam) Observed soils throughout the wetland consist of an A horizon of black (10YR 2/1) loam or sandy loam, extending from the surface to between 10 and 16 inches deep. An A2 horizon was observed in plots 3, 5, and 15, which extends from approximately 12 inches deep to below 16 inches deep. The A2 horizon consists of a dark (10YR 2/2, 10YR 3/2, 10YR 3/4) loam or sandy loam with mottles.

Vegetation. The majority of Wetland A consists of PFO habitat, which is dominated by western red cedar (*Thuja plicata*), vine maple (*Acer circinatum*), red-osier dogwood (*Cornus stolonifera*), lady fern (*Athyrium filix-femina*), skunk cabbage (*Lysichiton americanum*), and field horsetail (*Equisetum arvense*). The PSS portions of the wetland are dominated by Sitka alder (*Alnus crispa*), field horsetail, sedges (*Carex spp.*), sweet coltsfoot (*Petasites frigidus*), Indian hellebore (*Veratrum viride*), and small-fruited bulrush (*Scirpus microcarpus*). The eastern portion of Wetland A consists of PEM habitat, which is dominated by small-fruited

bulrush, reed canarygrass (*Phalaris arundinacea*), sedges, field horsetail, western fescue (*Festuca occidentalis*), and sweet coltsfoot.

Wetland Functions. Wetland A is situated on a gentle slope and contains dense, ungrazed vegetation; therefore, it merits a “moderate” rating for water quality functions (16 points). The wetland scores a “moderate to high” rating for hydrologic (i.e. flood storage) functions, due to its sloping topography and dense, rigid vegetation (12 points). The wetland merits a “high” rating for habitat functions, due to the diversity of vegetation classes, presence of special habitat features, and connectivity to large areas of undisturbed habitat (30 points). Wetland rating forms are provided in Appendix C.

5.2.2 Wetland B

Overview. Wetland B is a depressional wetland located near the northwestern property corner of parcel 735334. The majority of the wetland is located within the BPA powerline easement and continues to the west and south (Figure 3). The delineated and surveyed portion of the wetland is 24.5 acres in size and consists primarily of PEM habitat (Photo 3). Wetland B is characterized by data plots 7, 9, and 10.

Hydrology. The main sources of water for Wetland B appear to be a seasonally high groundwater table and surface water runoff from immediate surrounding areas. At the time of the field investigation, soils were saturated within 12 inches of the soils surface throughout the wetland. A ditch, approximately two feet deep and four feet wide, extends along near the northern boundary of this wetland. The ditch appears to have been excavated for agricultural purposes and conveys flow easterly under the north-south gravel road through a 36-inch corrugated metal culvert. At the time of field investigation, the ditch contained standing water near the surface, but no obvious flow was observed.

Soils. The observed soils in Wetland B did not resemble the mapped Haplosaprists soil unit. Soil in data plots 7 and 9 both had A horizons extending to a depth greater than 16 inches, of black (10YR 2/1) loam with no mottles. Soil in data plot 10 contained an A horizon extending to a depth of 12 inches, of black (2.5Y 2.5/1) silty clay loam with two colors of mottles: olive (5Y 4/6) and dark brown (10YR 3.3). The B horizon is a black (2.5Y 2.5/1) silty clay loam to a depth greater than 17 inches with two colors of prominent mottles: olive brown (2.5Y 4/3) and dark yellowish brown (10YR 4/6).

Vegetation. Wetland B is characterized by a PEM community dominated by reed canarygrass, fowl bluegrass (*Poa palustris*), timothy (*Phleum pretense*), creeping buttercup (*Ranunculus repens*), common dandelion (*Taraxacum officinale*), and small-fruited bulrush.

Wetland Functions. Wetland B merits a “high” rating for water quality functions, due to the presence of persistent, ungrazed vegetation covering the majority of the wetland (22 points). The wetland scores a “low to moderate” rating for hydrologic functions, due to the presence of a permanently flowing surface outlet and a shallow depth of storage during wet periods (6 points).

In terms of habitat functions, the wetland scores a “moderate to high” rating because it is connected to other wetlands and is adjacent to undisturbed forest habitats.

5.2.3 Wetland C

Overview. Wetland C is a small, shallow depressional wetland located near the southeast property boundary of parcel 735334 and in the southern portion of the BPA powerline easement (Figure 3). Wetland C is 0.06 acre (2,798 square feet). The wetland contains PEM habitat (Photo 4) and is characterized by data plot 18.

Hydrology. The main source of water for Wetland C appears to be a seasonally high groundwater table. At the time of the field investigation, soils were saturated to the surface and free water was observed within eleven inches of the ground surface in the soil pit. The wetland has no surface water outlet.

Soils. The observed soils in Wetland C were very similar to the mapped soil unit, Quicksell loam. Soil investigation found a black (10YR 2/1) silty clay loam, extending 11 inches in depth. Soil directly below the A horizon to a depth of 13 inches, is a dark yellowish brown (10YR 4/4), silty clay loam. From a depth of 13 inches to 18 inches and greater, soil is a black (10YR) sandy clay loam.

Vegetation. Wetland C consists of a PEM community dominated by small-fruited bulrush, field horsetail, fowl bluegrass, and sedge.

Wetland Functions. Wetland C merits “moderate” ratings for water quality (12 points) and hydrologic (8 points) functions because the wetland is a closed depression with no surface water outlet. The wetland merits a “low” rating for habitat functions due to a lack of vegetation structure diversity, lack of special habitat features, and disturbance within its buffer (8 points).

5.2.4 Wetland D

Overview. Wetland D is a depressional wetland located on the eastern half parcel number 735334 (Figure 3). The wetland is 1.0 acre and supports PEM habitat (Photo 5). It is characterized by data plot 19.

Hydrology. The main sources of water for Wetland D appear to be a seasonally high groundwater table and surface water runoff from immediate surrounding areas. At the time of the field investigation, soils were saturated to a depth of 6 inches and free water within the pit was observed within 12 inches of the ground surface in the soil pit. A ditch is located in the middle of this wetland in a north south orientation. Wetland D drains into the main east-west ditch within the BPA easement.

Soils. The observed soils in Wetland D do not match the mapped soil unit, Dystroxerepts. Soil investigation found a black (2.5Y 2.5/1) sandy clay loam with olive brown (2.5Y 4/3) mottles, extending to at 11 inches in depth, and a dark gray (2.5Y 4/1), sandy clay horizon to a depth greater than 18 inches, with yellowish brown (10YR 5/6) mottles.

Vegetation. Wetland D consists of a PEM vegetation community, which is dominated by fowl bluegrass, tall buttercup (*Ranunculus occidentalis*), sawbeak sedge (*Carex stipata*), spikerush (*Eleocharis sp.*), and Watson willowherb (*Epilobium watsonii*).

Wetland Functions. Wetland D merits “low” ratings for water quality (6 points) and hydrologic (2 points) functions, and a “low to moderate” rating for habitat functions (11 points). The wetland is situated on a slope and is periodically mowed. In addition, the wetland contains only an emergent vegetation community, and lacks special habitat features.

5.2.5 Wetland F

Overview. Wetland F is a slope wetland located near the south property boundary of parcels 21142 and 21141 and within the BPA powerline easement. The wetland continues offsite to the southeast. Wetland F is at least 0.4 acre in size and consists of PEM habitat (Photo 6). The wetland is characterized by data plot 27.

Hydrology. The main source of water for Wetland F appears to be a seasonally high groundwater table and surface water runoff from immediate surrounding areas. At the time of the field investigation, soils were saturated at 4 inches from the surface.

Soils. The observed soils in Wetland F did not match the mapped soil units, Volperie and Quicksell series. Soil investigation found a very dark brown (10YR 2/2) sandy clay loam, with dark yellowish brown (10YR 4/4) mottles, extending 15 inches in depth. Soil directly below the A horizon to a depth of 18 inches, is a brown (10YR 4/3), silty clay loam, with dark yellowish brown (10YR 4/4) mottles.

Vegetation. Vegetation in Wetland F consists of a PEM community, dominated by fowl bluegrass, common yarrow (*Achillea millefolium*), bird's-foot trefoil (*Lotus sp.*), and creeping buttercup.

Wetland Functions. Wetland F merits a “low” rating for water quality functions (7 points), a “moderate” score for hydrologic functions, and a “low” rating for habitat functions (9 points). The wetland is situated on a gentle slope and contains dense vegetation. The wetland has low vegetation class diversity and lacks special habitat features, but is surrounded by undisturbed upland buffer.

5.3 Stream Description

Adolfson biologists observed an unnamed stream that occurs onsite and lies within the boundaries of Wetland A. The stream flows west to east and continues out of the study area to the east. It receives flow from the agricultural ditches present within the BPA powerline corridor and from Wetland A. The width of the stream ranges from one to four feet and, in some localized areas, extends as broad sheet flow without a defined bed and bank. Stream depths range from six to 18 inches with a variety of substrates including muck and silt to small cobbles and sand. The stream was not flagged due to its location within the boundaries of Wetland A.

6.0 REGULATORY IMPLICATIONS

Wetlands and other waters are regulated at the federal, state, and local levels. Agencies with jurisdiction include the Corps, Washington State Department of Ecology (Ecology), and Kittitas County. The Washington Department of Fish and Wildlife regulates work within streams. Regulatory implications associated with development in wetlands and streams include, but may not be limited to, those discussed in this section. All applicable permits should be obtained prior to developing or otherwise altering wetlands.

6.1 Federal Regulations

The Corps regulates discharges of dredged or fill materials into waters of the United States, including wetlands, under Section 404 of the Clean Water Act. The purpose of the Clean Water Act is to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” A Section 404 permit may be required if a proposed project involves filling wetlands or altering streambeds or other waters of the U.S.

The Corps has established two types of permit programs under Section 404: nationwide and individual. Nationwide permits (NWP) are issued when a proposed activity will have minimal adverse impacts to wetlands. All other projects are evaluated under the individual permitting process. The Corps determines which permitting process is used for a proposed project. The Corps will require that wetland impacts be avoided or minimized to the extent practicable, and mitigation will likely be required for unavoidable wetland impacts. The NWP program was updated in March 2007 with revised conditions and standards. However, the regional conditions associated with this program for the Seattle District have not yet been issued.

6.2 State Regulations

The state certification process under Section 401 of the federal Clean Water Act is usually triggered through a Section 404 permit application. Section 401 directs each state to certify that proposed in-water activities will not adversely affect water quality or violate state aquatic protection laws. In Washington State, Ecology is responsible for administering the state certification program. Ecology may issue approval, approval with conditions, denial, or a request for delay due to lack of information. Any conditions attached to the 401 certification become part of the Section 404 permit issued by the Corps.

6.3 Local Regulations

Wetlands and streams are regulated by Kittitas County Code (KCC) Title 17A – Critical Areas, as in effect in June 2007.

6.3.1 Wetlands

According to Title 17A, wetlands are classified into four categories: Category I (extreme high value), Category II (high value), Category III (average value), and Category IV (less than average value) (KCC 17A.04.010). The KCC does not specify the use of a particular rating system, nor is a methodology for rating wetlands included in the code. To determine wetland categories, biologists are to use best professional judgment and refer to Ecology's *Washington State Wetland Rating System for Eastern Washington – Revised* (Hruby, 2007) for additional guidance (personal communication, Dan Valoff, Kittitas County Community Development Services, June 2007).

Adolfson biologists rated each of the delineated wetlands using the Ecology rating system; completed data forms are included as Appendix C. Wetland A contains several vegetation classes and is largely unaltered, but is not a rare wetland type such as a bog or mature forest. Therefore, Adolfson biologists determined that Wetland A meets Category II wetland criteria. Wetland B is composed primarily of emergent habitat, which is periodically mowed/hayed. However, the wetland contains some forested habitat near its southern boundary. Therefore, the wetland was determined to meet Category III criteria. Wetland C is a small, highly-altered depression area with low plant species diversity. They were determined to meet Category IV wetland criteria. Both Wetlands D and F are composed primarily of emergent habitat, and are periodically mowed. Therefore, they were determined to meet Category IV wetland criteria.

Table 6-1 summarizes the wetland buffer ranges as required under KCC 17A.04.020. KCC 17A.04.025 states that the planning director shall base the actual buffer size based upon: 1) the overall intensity of the proposed use; 2) the presence of threatened, endangered, or sensitive species; 3) the site's susceptibility to severe erosion; and 4) the use of a buffer enhancement plan by the applicant which uses native vegetation or other measures which will enhance the functions and values of the wetland or buffer.

Table 6-1. Wetland buffer ranges

Wetland Category	Minimum Regulated Size (square feet)	Required Buffer (feet)
I	Any size	50-200
II	Over 2,000	25-100
III	Over 10,000	20-80
IV	43,560	Not to exceed 25

To assist with site layout planning, Adolfson applied the maximum buffer widths to each wetland based on the above table. The buffer widths may be reduced by the Kittitas County Community Development Services during project review. Table 6-2 provides a summary of the wetlands, their ratings and buffer widths, in the project area.

Table 6-2. Wetland summary

Wetland Name	Area (acres)	Hydrogeomorphic (HGM) Class	Cowardin Classes	Kittitas County Rating	Maximum Buffer Width (feet)	Required Mitigation Ratio
A	32.5	slope	PEM, PSS, PFO	II	100	2:1
B	24.5	depressional	PEM, PFO	III	80	1.5:1
C	0.06	depressional	PEM	IV	25	1:1
D	1.05	slope	PEM	III	80	1.5:1
F	0.38	slope	PEM	IV	25	1:1

6.3.2 Streams

Kittitas County has adopted the five-tier typing system as described in WAC 222-16-030 to classify surface waters such as streams (KCC 17A.02.300). Based on the state water typing system, the unnamed stream observed within Wetland A is classified as a Type 3 water. Type 3 waters have a riparian habitat buffer range of 20 – 50 feet from the ordinary high water mark (OHWM). The maximum buffer is less than the 100-foot wetland buffer applied to Wetland A.

7.0 IMPACTS

The Meadow Springs, Starlite Estates, and Tamarack Ridge projects involve subdivision of lots and construction of single-family residences. Access roads for each of three developments will also be provided as part of the projects. As a result, there will be unavoidable permanent impacts to wetlands and wetland buffers. Only one of the five wetlands identified in the study area and the buffer of two of the wetlands will be affected by the project (Figure 3 and Table 7-1).

The following assessment of wetland and buffer impacts is based on a preliminary site plan layout developed by BCE, dated August 20, 2007. The preliminary site plan includes lot layout and proposed roads, and does not show associated infrastructure for water, sewer, power, and gas services.

7.1 Wetland Impacts

Based on the preliminary site plan, the proposed project will impact approximately 0.09 acre or 3,884 square feet of wetland in the study area (Table 7-1). The project developer and project engineers avoided all impacts to wetland and wetland buffer by locating all of the proposed lots outside of delineated wetlands and their buffers. The project team further avoided and minimized wetland impacts by locating proposed access roads in upland areas wherever possible. However, the proposed access road to the southern lots in the Meadow Springs development will result in minor impact to Wetland A.

7.2 Stream Impacts

No impacts to the unnamed stream associated with Wetland A are proposed as part of the project. In addition, there will be no impacts to Wetland A that might influence the existing hydrology of the watercourse.

7.3 Buffer Impacts

The proposed project will impact 59,521 square feet of the buffer associated with Wetland A. The northern portion of the buffer would be reduced in multiple areas to accommodate proposed access roads and proposed lots 4, 5, and 6 (Figure 3). Approximately 13,402 square feet of Wetland D buffer would be impacted to accommodate the proposed access road to the southern lots in the Meadow Springs development.

Table 7-1. Wetland and Buffer Impact Summary

Wetland Name	Area (acres)	Kittitas County Rating	Preliminary Wetland Impact (sf)	Preliminary Buffer Impact (sf)
A	32.5	II	3,884	59,521
B	24.5	III	0	0
C	0.06	IV	0	0
D	1.05	III	0	13,402
F	0.38	IV	0	0
Total	58.49		3,884	72,923

8.0 MITIGATION

Federal, state, and local agencies require the use of mitigation sequencing for limiting and reducing impacts to wetlands. Mitigation sequencing has been followed during site layout and design of this project. Typically, mitigation for impacts to wetlands must be addressed in the following sequence:

1. Avoid wetland and buffer impacts.
2. Minimize wetland and buffer impacts.
3. Mitigate for wetland and buffer impacts in the following order of preference:
 - a. restore wetlands on upland sites that were formerly wetlands;
 - b. enhance significantly degraded wetlands;
 - c. create wetlands on disturbed upland sites such as those with vegetative cover consisting primarily of exotic introduced species or noxious weeds.

In Kittitas County, up to two acres of Class IV wetlands may be filled, drained, or modified with no approval required from the planning manager, and no required mitigation (KCC 17A.04.040). However, mitigation may be required by state and/or federal agencies. The KCC requires mitigation for Category IV wetland fill or modification that exceeds two acres (17A.04.040). KCC 17A.04.050 requires the following wetland replacement ratios for wetland impacts:

Table 7-2. Wetland mitigation ratios

Wetland Category	Replacement Ratio (replacement: impact)
I	3:1
II	2:1
III	1.5:1
IV	1:1

To mitigate for the direct impacts to wetlands and buffers resulting from site development, the project is proposing to provide enhancement of existing low value wetland areas within the project vicinity. To mitigate for impacts to wetland buffers, the project proposes to add an equal area of upland buffer. The buffer addition areas are shown on Figure 3. The areas of wetland enhancement will be identified after a final grading plan has been developed. It is anticipated that portions of Wetland B will be targeted for wetland enhancement. The enhanced wetland would provide additional water quality improvement function, wildlife habitat value, and increased plant species diversity.

9.0 LIMITATIONS

Within the limitations of schedule, budget, scope-of-work, and seasonal constraints, we warrant that this study was conducted in accordance with generally accepted environmental science practices, including the technical guidelines and criteria in effect at the time this study was performed, as outlined in the Methods section. The results and conclusions of this report represent the authors' best professional judgment, based upon information provided by the project proponent in addition to that obtained during the course of this study. No other warranty, expressed or implied, is made.

10.0 GLOSSARY

agricultural wetland - Areas where wetland soils and hydrology remain, but hydrophytic vegetation has been removed to allow a crop to be grown.

anaerobic - A situation in which molecular oxygen is absent (or effectively so) from the environment.

atypical situation - Areas in which one or more wetland parameters (vegetation, soil, and/or hydrology) have been sufficiently altered by recent human activities or natural events to preclude the presence of wetland indicators of the parameter. "Recent" is intended to mean that period of time since legal jurisdiction of an applicable law began.

best management practices (BMPs) – The physical, structural, and/or managerial practices that, when used singly or in combination, prevent or reduce pollutant discharges.

buffer - A designated area along the edge of a stream or wetland that is regulated to control the negative effects of adjacent development from intruding into the aquatic resource.

concretion - A local concentration of chemical compounds such as calcium carbonate or iron oxide in the soil that forms a grain or nodule of varying size, shape, hardness, and color. Concretions of significance in hydric soil are usually iron and/or manganese oxides occurring at or near the soil surface that develop under conditions of prolonged soil saturation.

dominant species – Plant species that define the character of a vegetation community. In wetland delineation, this is typically measured using percent areal cover. For each stratum in the plant community (trees, shrubs, and herbs), dominant species are the most abundant plant species that when ranked in descending order of abundance and cumulatively totaled immediately exceed 50 percent cover for the stratum, plus any additional species that individually compose 20 percent or more of the total cover in the stratum. The list of dominant plant species is then combined across strata (Environmental Laboratory, 1987; Ecology, 1997)

emergent - A plant that grows rooted in shallow water, the bulk of which emerges from the water and stands vertically. Usually applied to non-woody vegetation.

emergent wetland - In the USFWS classification system (Cowardin et al., 1979), a wetland characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens.

enhancement - An improvement in the functions and values of an existing wetland, typically through native plantings.

fill material - Any material placed in an area to increase the surface elevation.

forested wetland - In the USFWS classification system (Cowardin et al., 1979), a wetland characterized by woody vegetation that is six meters (20 feet) tall or taller.

gleyed - A soil condition resulting from prolonged soil saturation, manifested by the presence of bluish or greenish colors throughout the soil or in mottles (spots or streaks) among other colors.

herbaceous - Having the characteristics of an herb; a plant with no persistent woody stem above the ground.

hydric soil - A soil that formed under conditions of saturation, flooding, or ponding long enough to develop anaerobic conditions in the upper part.

hydrogeomorphic (HGM) classification - A system of classifying wetlands based on their position in the landscape and the movement of water within the wetland.

hydrology - The science dealing with the properties, distribution, and circulation of water.

hydrophyte - Any plant growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. The sum total of hydrophytes in an area is known as "hydrophytic vegetation."

in-kind compensation - Compensation for lost wetland habitat with a replacement wetland of the same habitat type.

inundation - A condition in which water from any source temporarily or permanently covers a land surface.

invasive plant species - Plant species that become established easily in disturbed conditions, reproduce readily, and often establish monocultures. Most invasive plants are non-native species; they were introduced to the Northwest intentionally or unintentionally by humans. Examples of common invasive species in the Pacific Northwest are Scot's broom, Canada thistle, hedge bindweed, English ivy, reed canarygrass, and purple loosestrife.

lacustrine - In the USFWS classification system (Cowardin et al., 1979), lacustrine refers to a freshwater area that has all of the following characteristics: (1) situated in a topographic depression or a dammed river channel; (2) has less than 30% coverage of trees, shrubs, persistent emergent plants, mosses, or lichens; and (3) total area exceeds 20 acres. For areas less than 20 acres, an area is considered lacustrine if it has an active wave-formed or bedrock shoreline or is deeper than 6.6 feet in the deepest part. "Freshwater" means less than 0.5 parts per thousand ocean-derived salts.

mitigation - Defined in WAC 197-11-766 as:

- (1) Avoiding the impact altogether by not taking a certain action or parts of an action;
- (2) Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;
- (3) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

- (4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;
- (5) Compensating for the impact by replacing, enhancing or providing substitute resources or environments: and/or
- (6) Monitoring the impact and taking appropriate corrective measures.

100-year floodplain - The flood with a 100-year recurrence interval; those areas identified as Zones A, A1-30, AE, AH, AO, A99, V, V1-30, and VE on most current Federal Emergency Management Agency (FEMA) Flood Rate Insurance Maps, or areas identified as 100-year floodplain on applicable local Flood Management Program maps.

ordinary high-water mark - The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; changes in the character of soil or vegetation; topographic shelves; or the presence of a line of litter or debris.

out-of-kind compensation - Compensation for lost wetland habitat with a replacement wetland of a different habitat type.

palustrine - In the USFWS classification system (Cowardin et al., 1979), palustrine refers to freshwater areas dominated by trees, shrubs, persistent emergent plants, mosses, or lichens. They can be non-tidal or tidal. Palustrine also includes wetlands lacking this vegetation but with the following characteristics: (1) area less than 20 acres; (2) no active wave-formed or bedrock shoreline; (3) water depth in the deepest part is less than 6.6 feet at low water. "Freshwater" means having less than 0.5 parts per thousand ocean-derived salts.

persistent emergents - Emergent plants that remain standing at least until the beginning of the next growing season.

reach - A length of stream channel with uniform characteristics.

redoximorphic soil characteristics - Features of the soil such as masses, nodules, or mottles formed through reduction and oxidation of iron and manganese in seasonally saturated soils.

restoration - To improve a disturbed or altered wetland by returning wetland parameters that may be missing.

rhizosphere - The zone of soil surrounding a plant root in which interactions between the living root and microorganisms occur.

riverine - In the USFWS classification system (Cowardin et al., 1979), riverine refers to freshwater areas that are contained within a channel and are not dominated by trees, shrubs, and persistent emergent plants. Examples include rivers and streams. "Freshwater" means having less than 0.5 parts per thousand ocean-derived salts.

saturated soil conditions - A condition in which all easily drained spaces between soil particles in the root zone are temporarily or permanently filled with water.

scrub-shrub - In the USFWS classification system (Cowardin et al., 1979), areas dominated by woody vegetation less than 6 meters (20 feet) tall. The species include tree shrubs, young trees, and trees or shrubs that are stunted because of environmental conditions.

Section 404 permit - A permit issued by the U.S. Army Corps of Engineers under Section 404 of the federal Clean Water Act that allows an activity (filling) within a wetland. A 404 permit usually requires compensation or mitigation for the wetland impacts.

soil matrix - The portion of a given soil that has the dominant color. In most cases, the matrix is the portion of the soil having more than 50% of the same color.

synonymy - Different scientific names for the same species.

waters of the United States - As defined in 33 CFR Part 328, the term "waters of the United States" means:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
 - i. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
 - ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - iii. Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under the definition;
5. Tributaries of waters identified in paragraphs 1-4;
6. The territorial seas;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs 1-6.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States.

8. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA.

wetlands - Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (Federal Register, 1982, 1986).

wetland boundary - The point on the ground at which a shift from wetlands to non-wetlands or aquatic habitat occurs.

wetland hydrology - Wetland hydrology is considered to be present when there is permanent or periodic inundation or soil saturation at or near the soil surface for more than 12.5% of the growing season (typically two weeks in lowland Pacific Northwest areas). Areas that are inundated or saturated for between 5% and 12.5% of the growing season in most years may or may not be wetlands. Areas inundated or saturated for less than 5% of the growing season are non-wetlands (Ecology, 1997).

wetland indicator status (WIS) - Categories assigned to plant species based upon the estimated probabilities (expressed as a frequency of occurrence) of the species occurring in a wetland or a non-wetland. Wetland indicator status categories include the following:

Obligate (OBL): species that almost always occur in wetlands under natural conditions (estimated probability >99%).

Facultative wetland (FACW): species that usually occur in wetlands (estimated probability 67 to 99%), but are occasionally found in non-wetland areas.

Facultative (FAC): species that are equally likely to occur in wetlands (estimated probability 34 to 66%) or non-wetland areas.

Facultative upland (FACU): species that usually occur in non-wetland areas (estimated probability 67 to 99%), but are occasionally found in wetlands.

Upland (UPL): species that almost always occur in non-wetland areas under normal conditions (estimated probability >99%).

A (+) or (-) following the WIS signifies a greater or lesser likelihood, respectively, of the species being found in wetland conditions. Plant species can also be designated "No indicator" or NI, which includes species for which insufficient information is available to determine status, or

which were not evaluated by USFWS in compiling the WIS listings. Plant species that are not listed on the USFWS list of WIS ratings are designated "NL" and are presumed to be upland species.

11.0 REFERENCES

- Brinson, M. August 1993. *A Hydrogeomorphic Classification for Wetlands*. U.S. Army Corps of Engineers, Wetlands Research Program.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31. U.S. Fish and Wildlife Service.
- Ecology (Washington State Department of Ecology). 1991. *Shoreline Management Handbook: First Edition*. Publication No. 90-45. Olympia, Washington.
- Ecology (Washington State Department of Ecology). 1992. *The Growth Management Act and the State Environmental Policy Act: A Guide to Interrelationships*. Publication No. 92-07. Olympia, Washington.
- Ecology (Washington State Department of Ecology). 1994. *Wetlands Regulations Guidebook*. Publication No. 88-5. Olympia, Washington.
- Ecology (Washington State Department of Ecology). 1997. *Washington State Wetlands Identification and Delineation Manual*. Publication No. 96-94. Olympia, Washington.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Massachusetts.
- Federal Register. 1982. *Title 33: Navigation and Navigable Waters; Chapter II, Regulatory Programs of the Corps of Engineers*. Vol. 47, No. 138, p. 31810. U.S. Government Printing Office, Washington, DC.
- Federal Register. 1986. *33 CFR Parts 320 through 330: Regulatory Programs of the Corps of Engineers; Final Rule*. Vol. 51, No. 219, pp. 41206-41260. U.S. Government Printing Office, Washington, DC.
- Federal Register. 1988. *40 CFR Part 230. Guidelines for Specification of Disposal Sites for Dredged or Fill Material*. Vol. 45, No. 249, Pages 85336-85357. U.S. Government Printing Office, Washington, DC.
- Federal Register. 1994. *Changes in Hydric Soils of the United States*. July 13. Washington, DC.
- Hruby, T. 2007. *Washington State Wetland Rating System for Eastern Washington - Revised*. Washington State Department of Ecology.
- Munsell Color. 2000. *Munsell Soil Color Charts*. GretagMacbeth, New Windsor, New York.
- NRCS (Natural Resources Conservation Service). 1997. *Hydric Soils of the United States*. U.S. Department of Agriculture, Natural Resource Conservation Service in cooperation with the

National Technical Committee for Hydric Soils. (<http://www.statlab.iastate.edu/soils-info/hydric/homepage.html>). last updated May 15, 1997.

NRCS (Natural Resources Conservation Service). 1998. *Field Indicators of Hydric Soils in the United States, Version 4.0*. G.W. Hurt, P.M. Whited, and R.F. Pringle (eds.), United States Department of Agriculture, Ft. Worth, Texas.

NRCS (Natural Resources Conservation Service). 2007. *Hydric Soils List for Kittitas County Area, Washington (DRAFT)*.

NRCS (Natural Resources Conservation Service). 2001. *Hydric Soils List for Washington*.

USDA (United States Department of Agriculture). 2007. Aerial orthophotographs, National Agriculture Imagery Program.

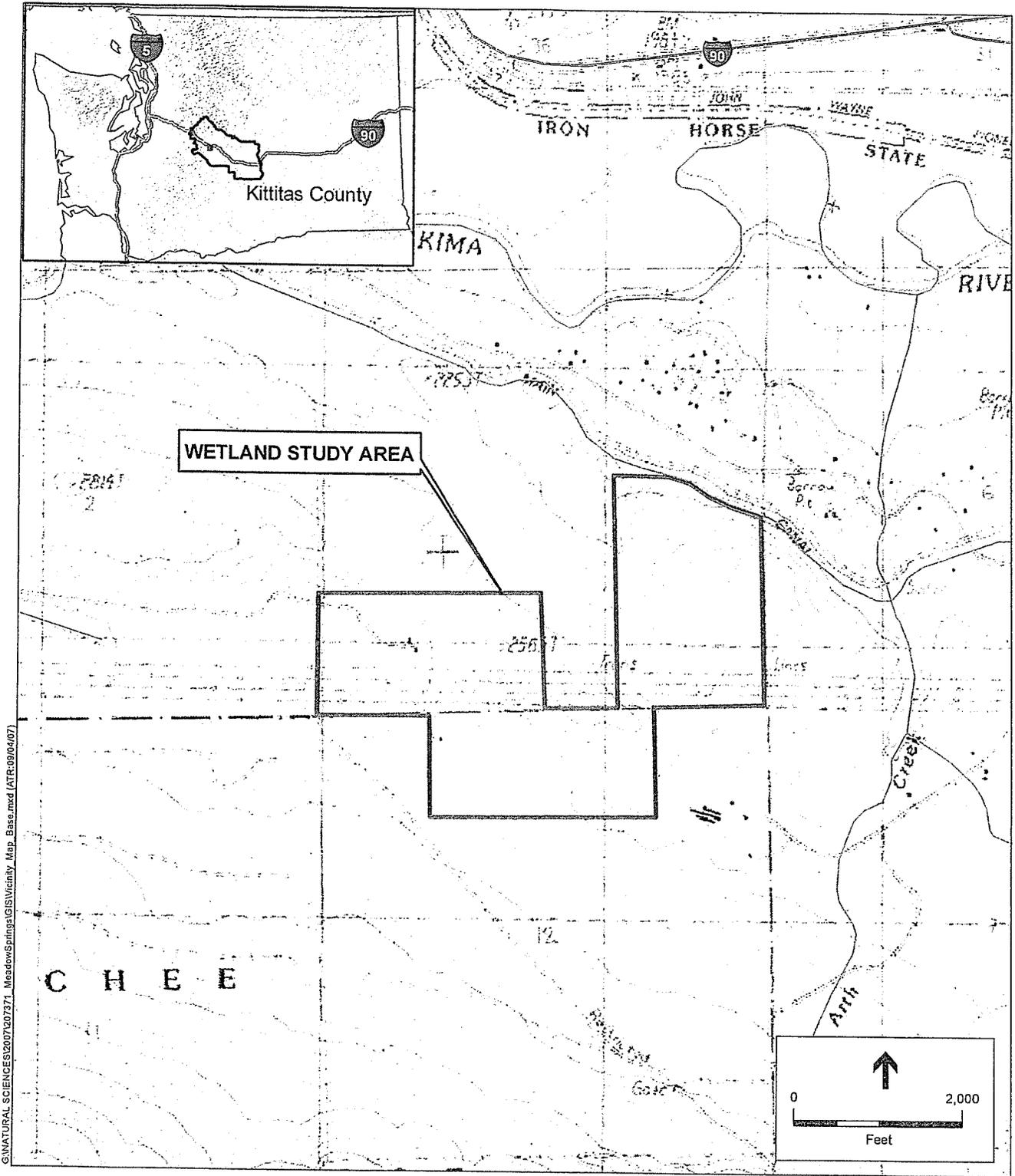
USFWS (U.S. Fish and Wildlife Service). 1987. *National Wetland Inventory (NWI) Map, Cle Elum quadrangle*.

USFWS (U.S. Fish and Wildlife Service). 1988b. *National List of Plant Species that Occur in Wetlands: Northwest (Region 9)*. Biol. Rpt. 88(26.9). United States Department of Interior, Washington, DC.

USFWS (U.S. Fish and Wildlife Service). 1993. *1993 Supplement to List of Plant Species that Occur in Wetlands: Northwest (Region 9)*.

Vepraskas, M.J. 1999. *Redoximorphic Features for Identifying Aquic Conditions*. Technical Bulletin 301. North Carolina Agricultural Research Service, North Carolina State University, Raleigh, North Carolina.

FIGURES AND PHOTOGRAPHS



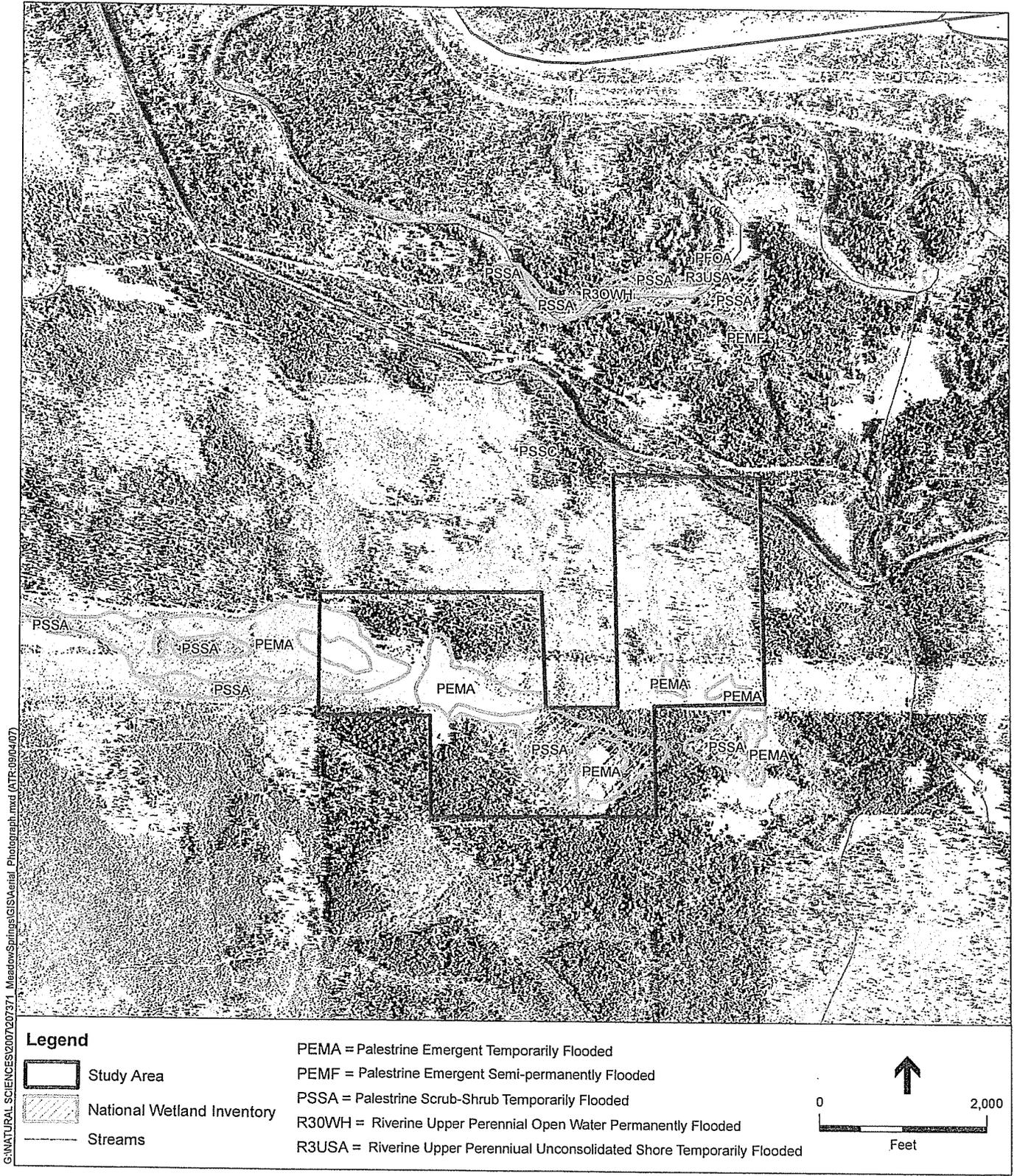
G:\NATURAL SCIENCES\2007\207371_MeadowSprings\GIS\Vicinity_Map_Base.mxd (ATR:09/04/07)

SOURCE: ESRI, 2007; WADOE (2005), 2006; WASHDOT (2004), 2007

Map data shown are the property of the sources listed above. Inaccuracies may exist, and ESA Adolison implies no warranties or guarantees regarding any aspect of data depiction.

Meadow Springs. 207371

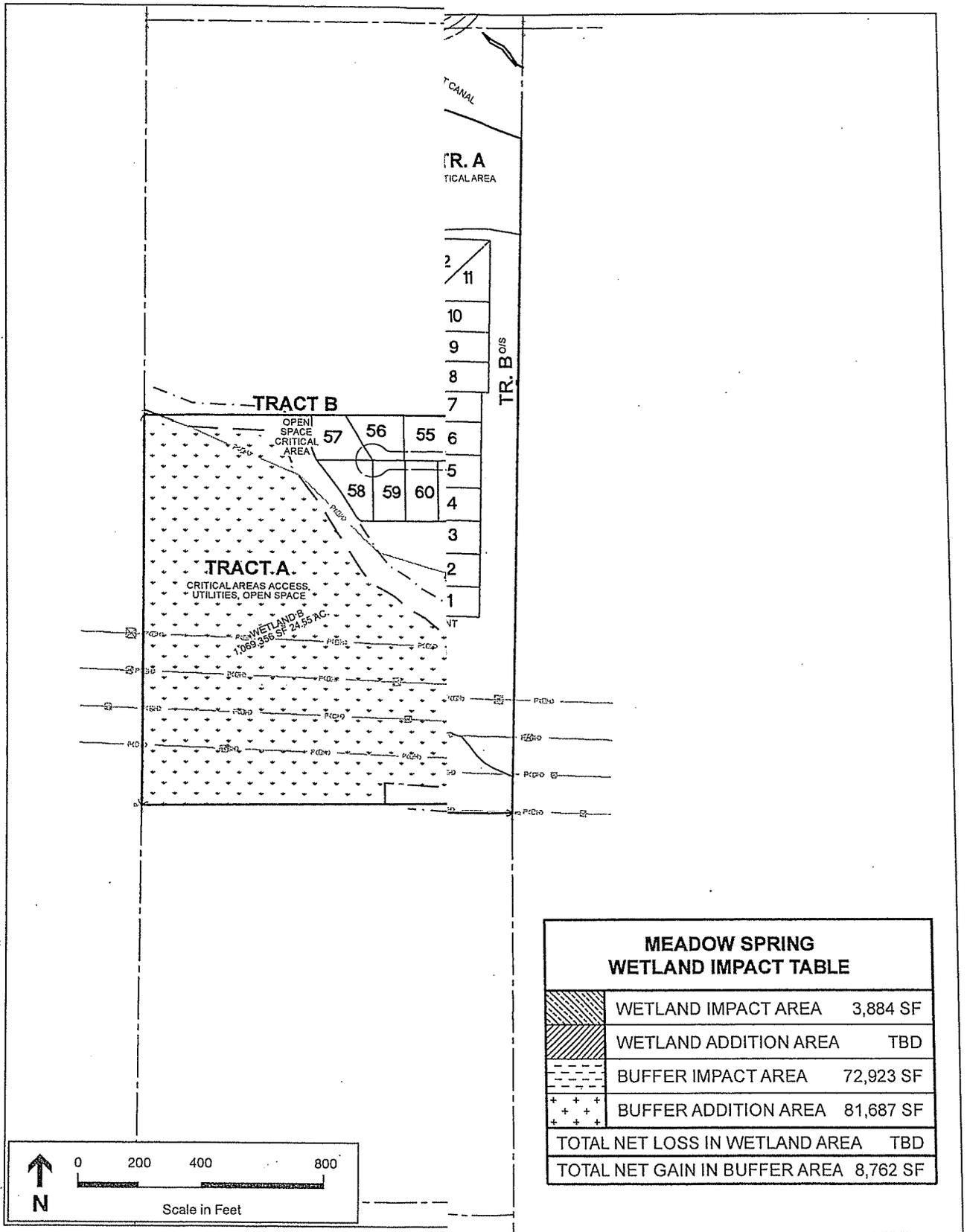
Figure 1
Vicinity Map
Kittitas County, Washington



SOURCE: NAIP, 2006; WADOE, 2001; WDFW, 2007

Meadow Springs . 207371

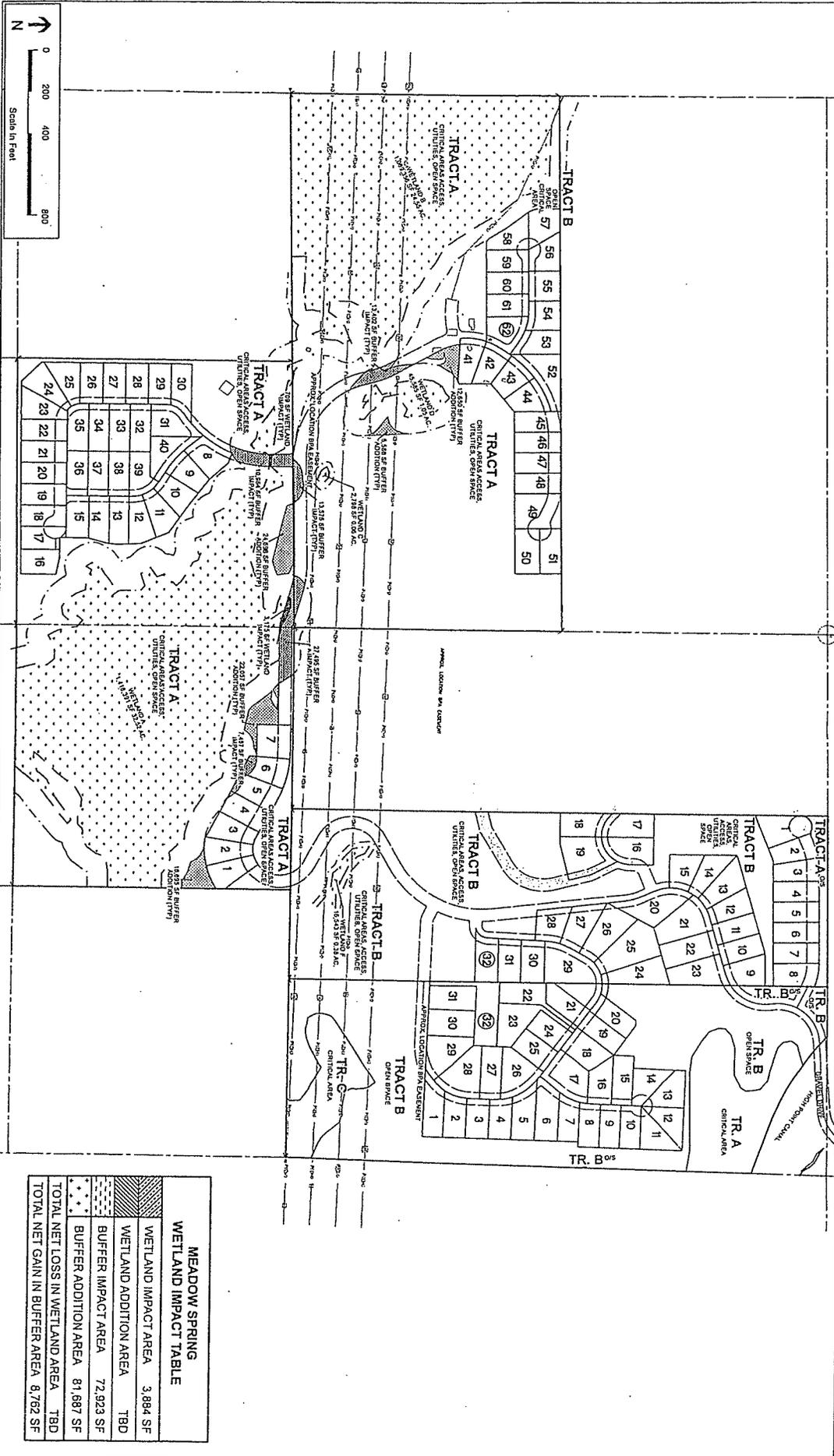
Figure 2
 Aerial Photograph
 Kittias County, Washington



SOURCE: Barghausen Consulting Engineers, August 20, 2007.

Meadow Springs . 207371

Figure 3
 Wetland Location Map and Site Layout
 Cle Elum, Washington



SOURCE: Bergthausen Consulting Engineers, August 20, 2007.

Meadow Springs, 207371

Figure 3
 Wetland Location Map and Site Layout
 Cle Elum, Washington

FL

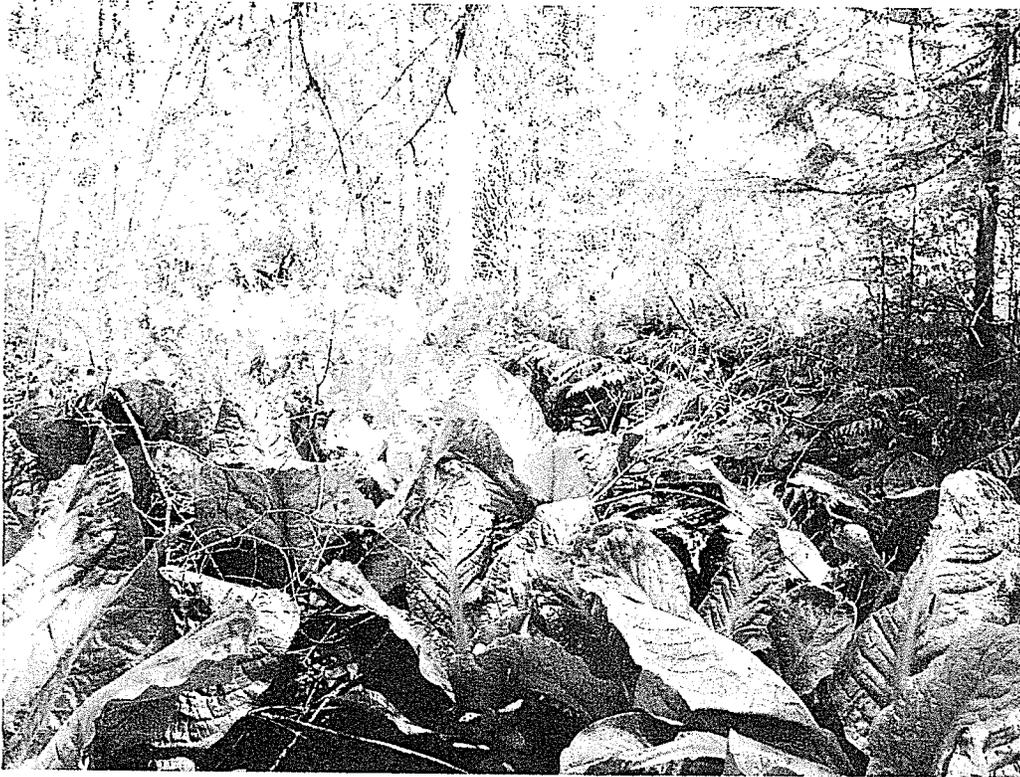


Photo 1 – Wetland A – typical PFO community.



Photo 2 – PEM community in eastern portion of Wetland A, facing east.

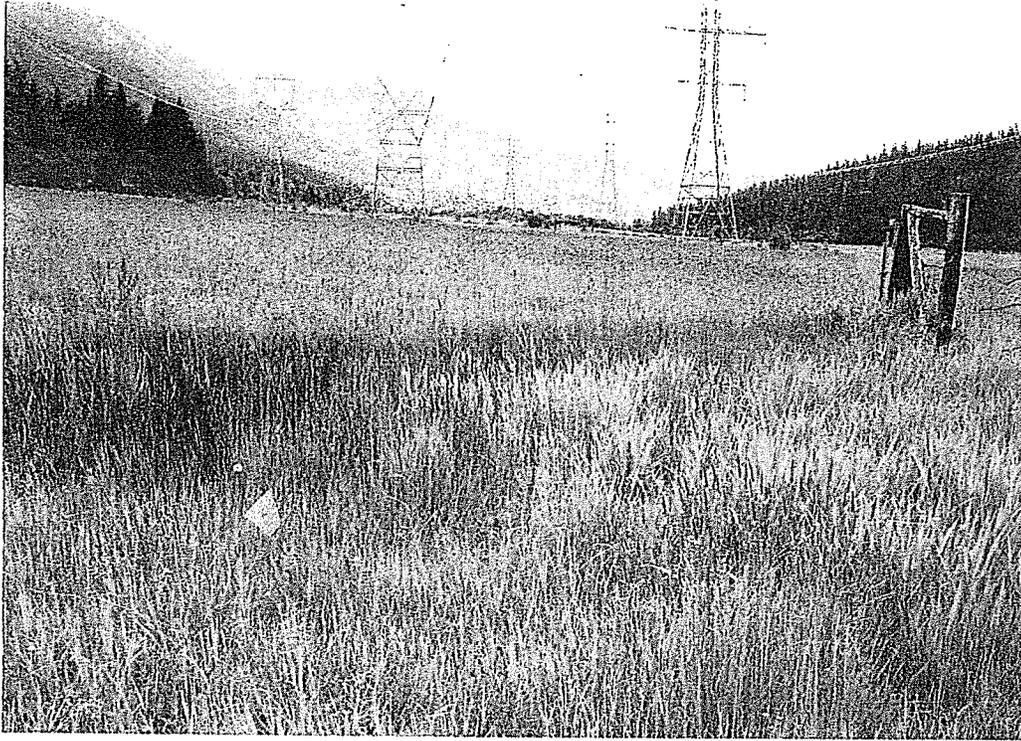


Photo 3 – Wetland B – facing west from existing gravel road .

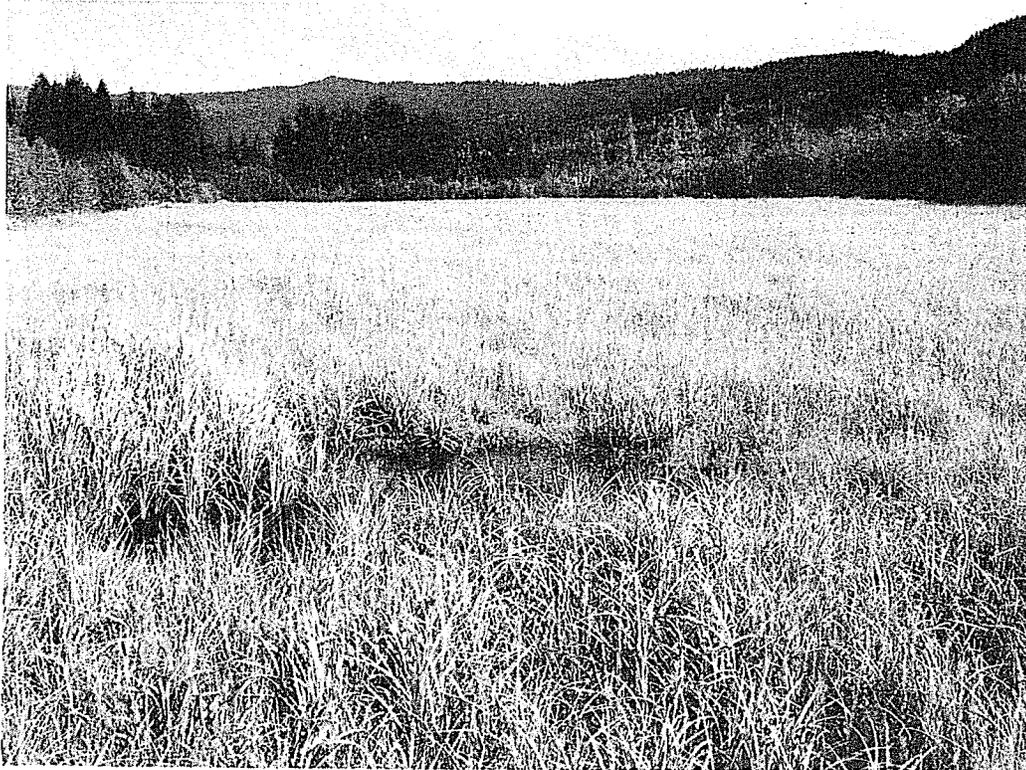


Photo 4 – Wetland C – facing east.



Photo 4 – Wetland D – facing north from southern wetland boundary.



Photo 5 – Wetland F – facing west.

**APPENDIX A:
METHODS USED TO EVALUATE WETLAND
CHARACTERISTICS**

Wetland Definition

Wetlands are formally defined by the U.S. Army Corps of Engineers (Corps) (Federal Register, 1982), the Environmental Protection Agency (EPA) (Federal Register, 1988), the Washington Shoreline Management Act (SMA) of 1971 (Ecology, 1991) and the Washington State Growth Management Act (GMA) (Ecology, 1992) as

... those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (Federal Register, 1982, 1986).

In addition, the SMA and the GMA definitions add:

Wetlands do not include those artificial wetlands intentionally created from non-wetland site, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990 that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificially created wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands.

Methods defined in the *Washington State Wetlands Identification and Delineation Manual* (Ecology, 1997), a manual consistent with the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987), were used to determine the presence and extent of wetlands on the subject property. Washington state and all local governments must use the state delineation manual to implement the SMA and/or the local regulations adopted pursuant to the GMA. The methodology outlined in the manual is based upon three essential characteristics of wetlands: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology. Field indicators of these three characteristics must all be present in order to determine that an area is a wetland (unless problem areas or atypical situations are encountered). These characteristics are discussed below.

Vegetation

Plants must be specially adapted for life under saturated or anaerobic conditions to grow in wetlands. The U.S. Fish and Wildlife Service (USFWS) has determined the estimated probability of each plant species' occurrence in wetlands and has accordingly assigned a "wetland indicator status" (WIS) to each species (USFWS, 1988b, 1993). Plants are categorized as obligate (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), upland (UPL), not listed (NL), or no indicator status (NI). Definitions for each indicator status are listed in the Glossary. Species with an indicator status of OBL, FACW, or FAC are considered adapted for life in saturated or anaerobic soil conditions. Such species are referred to as "hydrophytic" vegetation. A (+) or (-) sign following the WIS signifies greater or lesser likelihood, respectively, of the species being found in wetland conditions.

Areas of relatively homogeneous vegetative composition can be characterized by “dominant” species. The indicator status of the dominant species within each vegetative stratum is used to determine if the plant community may be characterized as hydrophytic. The vegetation of an area is considered to be hydrophytic if more than 50% of the dominant species have an indicator status of OBL, FACW, or FAC.

Soils

Hydric soils are indicative of wetlands. Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (Federal Register, 1994). The Natural Resources Conservation Service (NRCS), in cooperation with the National Technical Committee for Hydric Soils, has compiled lists of hydric soils (NRCS, 1997). These lists identify soil series mapped by the NRCS that meet hydric soil criteria. It is common, however, for a map unit of non-wetland (non-hydric) soil to have inclusions of hydric soil, and vice versa. Therefore, field examination of soil conditions is important to determine if hydric soil conditions exist.

The NRCS has developed a guide for identifying field indicators of hydric soils (NRCS, 1998). This list of hydric soil indicators is considered to be dynamic; revisions are anticipated to occur on a regular basis as a result of ongoing studies of hydric soils. Anaerobic conditions create certain characteristics in hydric soils, collectively known as “redoximorphic features,” that can be observed in the field (Vepraskas, 1999). Redoximorphic features include high organic content, accumulation of sulfidic material (rotten egg odor), greenish- or bluish-gray color (gley formation), spots or blotches of different color interspersed with the dominant or matrix color (mottling), and dark soil colors (low soil chroma) (NRCS, 1998; Vepraskas, 1999). Soil colors are described both by common color name (for example, “dark brown”) and by a numerical description of their hue, value, and chroma (for example, 10YR 2/2) as identified on a Munsell soil color chart (Munsell Color, 2000). Soil color is determined from a moist soil sample.

Hydrology

Water must be present in order for wetlands to exist; however, it need not be present throughout the entire year. Wetland hydrology is considered to be present when there is permanent or periodic inundation or soil saturation at or near the soil surface for more than 12.5% of the growing season (typically two weeks in lowland Pacific Northwest areas). Areas that are inundated or saturated for between 5% and 12.5% of the growing season in most years may or may not be wetlands. Areas inundated or saturated for less than 5% of the growing season are non-wetlands (Ecology, 1997).

Indicators of wetland hydrology include observation of ponding or soil saturation, water marks, drift lines, drainage patterns, sediment deposits, oxidized rhizospheres, water-stained leaves, and local soil survey data. Where positive indicators of wetland hydrology are observed, it is assumed that wetland hydrology occurs for a sufficient period of the growing season to meet the wetland criteria, as described by Ecology (1997).

APPENDIX B: WETLAND DETERMINATION DATA SHEETS

S Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality		Points (only 1 score per box)
S	S 1.0 Does the wetland have the potential to improve water quality?	(see p.56)
S	<p>S 1.1 Characteristics of average slope of wetland: Slope is 1% or less (a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance) points = 3 Slope is between 1% and 2% \rightarrow average points = 2 Slope is more than 2% but less than 5% points = 1 Slope is 5% or greater points = 0</p>	2
S	<p>S 1.2 The soil 2 inches below the surface is clay or organic (use NRCS definitions of soil types) YES = 3 points \rightarrow much soil observed NO = 0 points</p>	3
S	<p>S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches. Dense, ungrazed, herbaceous vegetation > 90% of the wetland unit points = 6 Dense, ungrazed, herbaceous vegetation > 1/2 of unit points = 2 Dense, woody, vegetation > 1/2 of unit points = 2 Dense, ungrazed, herbaceous vegetation > 1/4 of unit points = 1 Does not meet any of the criteria above for herbaceous vegetation points = 0 Aerial photo or map with vegetation polygons</p>	Figure 2 3
S	Total for S 1 Add the points in the boxes above	8
S	<p>S 2.0 Does the wetland have the opportunity to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Grazing in the wetland or within 150ft <input type="checkbox"/> Wetland is a groundwater seep within the Reclamation Area <input checked="" type="checkbox"/> Untreated stormwater flows through the wetland - upstream in BPA corridor <input type="checkbox"/> Tilled fields or orchards within 150 feet of wetland <input type="checkbox"/> Residential, urban areas, or golf courses are within 150 ft upslope of wetland <input type="checkbox"/> Other _____ <p>YES multiplier is 2 NO multiplier is 1</p>	(see p.58) multiplier 2
S	<p>TOTAL - Water Quality Functions Multiply the score from S1 by the multiplier in S2 Record score on p. 1 of field form</p>	16

S Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation		Points (only 1 score per box)
S	S 3.0 Does the wetland unit have the potential to reduce flooding and stream erosion? (see p.59)	
S	<p>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. See question S 1.3 for definition of dense and uncut. Rigid means that the stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows.</p> <p>Dense, uncut, rigid vegetation covers > 90% of the area of the unit points = 6 Dense, uncut, rigid vegetation > 1/2 - 90% area of unit points = 3 Dense, uncut, rigid vegetation > 1/4 - 1/2 of unit points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0</p>	3
S	<p>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.</p> <p>YES points = 2 NO points = 0</p>	3
S	Total for S3 Add the points in the boxes above	6
S	<p>S 4.0 Does the wetland unit have the opportunity to reduce flooding and erosion? (see p.61)</p> <p>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).</p> <p>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.</p> <p><input checked="" type="checkbox"/> Wetland has surface runoff that can cause flooding problems downgradient</p> <p><input type="checkbox"/> Other _____</p> <p>YES multiplier is 2 NO multiplier is 1</p>	multiplier 2
S	TOTAL - Hydrologic Functions Multiply the score from S3 by the multiplier in S4 Record score on p. 1 of field form	12

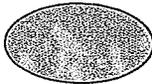
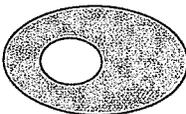
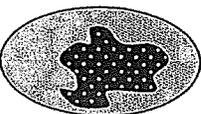
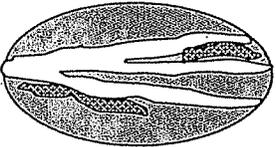
Comments

* No downstream property, but aquatic resources (stream) are present.

<i>These questions apply to wetlands of all HGM classes.</i>		Points <small>(only 1 score per box)</small>								
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat										
H 1. Does the wetland unit have the potential to provide habitat for many species?										
<p>H 1.1 Categories of vegetation structure (see p.62) Check the vegetation classes (as defined by Cowardin) and heights of emergents present. Size threshold for each class or height category is ¼ acre or more than 10% of the area if unit is < 2.5 acres.</p> <p style="margin-left: 100px;"><i>Emergent areas are periodically bogged</i></p> <p><input type="checkbox"/> Aquatic bed</p> <p><input checked="" type="checkbox"/> Emergent plants 0-12 in. (0 - 30 cm) high are the highest layer and have > 30% cover</p> <p><input type="checkbox"/> Emergent plants >12 - 40 in. (>30 - 100cm) high are the highest layer with >30% cover</p> <p><input type="checkbox"/> Emergent plants > 40 in. (> 100cm) high are the highest layer with >30% cover</p> <p><input checked="" type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover)</p> <p><input checked="" type="checkbox"/> Forested (areas where trees have >30% cover)</p> <p>Add the number of vegetation types that qualify. If you have:</p> <table style="margin-left: auto; margin-right: auto;"> <tr><td>4-6 types</td><td>points = 3</td></tr> <tr><td>3 types</td><td>points = 2</td></tr> <tr><td>2 types</td><td>points = 1</td></tr> <tr><td>1 type</td><td>points = 0</td></tr> </table>		4-6 types	points = 3	3 types	points = 2	2 types	points = 1	1 type	points = 0	<p>Figure 2</p> <p style="font-size: 2em;">2</p>
4-6 types	points = 3									
3 types	points = 2									
2 types	points = 1									
1 type	points = 0									
<small>Map of Cowardin vegetation classes and areas with different heights of emergents</small>										
<p>H 1.2. Is one of the vegetation types "aquatic bed?" (see p.64) YES = 1 point NO = 0 points</p>		<p style="font-size: 2em;">0</p>								
<p>H 1.3. Surface Water (see p.65)</p> <p>H 1.3.1 Does the unit have areas of "open" water (without herbaceous 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)? <i>Note: answer YES for Lake-fringe wetlands</i> YES = 3 points & go to H 1.4 NO = go to H 1.3.2</p> <p>H 1.3.2 Does the unit have an intermittent or permanent stream within its boundaries, or along one side, over at least ¼ acre or 10% of its area, AND that has an unvegetated bottom (answer yes only if H 1.3.1 is NO)? YES = 3 points NO = 0 points</p> <p style="text-align: center;"><small>Map showing areas of open water</small></p>		<p>Figure 2</p> <p style="font-size: 2em;">3</p>								
<p>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 Eurasian Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites, Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)</p> <p>If you counted: > 9 species points = 2</p> <p> 4-9 species points = 1</p> <p># of species: < 4 species points = 0 points</p> <p>List species below if you wish</p>		<p style="font-size: 2em;">2</p>								

7

27

<p>H 1.5. Interspersion of habitats (see p. 67) Decided from the diagrams below whether interspersion between categories of vegetation (described in H 1.1), or categories and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  None = 0 points </div> <div style="text-align: center;">  Low = 1 point </div> <div style="text-align: center;">  Moderate = 2 points </div> <div style="text-align: center;">  High = 3 points </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  High = 3 points </div> <div style="text-align: center;">  [Riparian braided channel] </div> </div> <p>NOTE: If you have four or more vegetation categories or three vegetation categories and open water the rating is always "high". Use maps from H1.1 and H1.3</p>	<p>Figure 2</p> <p style="font-size: 2em;">3</p>
<p>H 1.6. Special Habitat Features: (see p. 68) Check the habitat features that are present in the wetland unit. The number of checks is the number of points you put into the next column.</p> <p><input checked="" type="checkbox"/> Loose rocks larger than 4" or large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.</p> <p><input type="checkbox"/> Cattails or bulrushes are present within the unit.</p> <p><input checked="" type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland unit or within 30 m (100ft) of the edge.</p> <p><input type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded. The presence of "yellow flag" <i>Iris</i> is a good indicator of vegetation in areas permanently ponded.</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>45 degree slope) OR signs of recent beaver activity</p> <p><input checked="" type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)</p> <p style="text-align: right;">Maximum score possible = 6</p>	<p style="font-size: 2em;">3</p>
<p>TOTAL Potential to provide habitat Add the scores in the column above</p>	

Comments

<p>H 2.0 Does the wetland have the opportunity to provide habitat for many species?</p> <p>H 2.1 Buffers (see p. 71) <i>Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed." Relatively undisturbed also means no grazing, no landscaping, no daily human use, and no structures or paving within undisturbed part of buffer.</i></p> <ul style="list-style-type: none"> — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. Points = 5 <input checked="" type="checkbox"/> 330 ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. <i>BPA powerline corridor to north</i> 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 <p>If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> — 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 <p><i>Aerial photo showing buffers</i></p>	<p>Figure 4</p> <p style="text-align: center; font-size: 2em;">4</p>
<p>H 2.2 Wet Corridors (see p. 72)</p> <p>H 2.2.1 Is the wetland unit part of a relatively undisturbed and unbroken, > 30 ft wide, vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? (<i>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</i>)</p> <p>YES = 4 points (go to H 2.3) NO = go to H 2.2.2</p> <p>H 2.2.2 Is the unit part of a relatively undisturbed and unbroken, > 30 ft wide, 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?</p> <p>YES = 2 points (go to H 2.3) NO go to H 2.2.3</p> <p>H 2.2.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake (<i>do not include man-made ditches</i>)?</p> <p>YES = 1 point NO = 0 points</p>	<p style="text-align: center; font-size: 2em;">4</p> <p style="text-align: center; font-size: 2em;">8</p>

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 unit?

NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions.

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 than 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

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

4

Comments

27

<p>H 2.4 Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 76)</p> <ul style="list-style-type: none"> — The wetland unit 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 <input checked="" type="checkbox"/> 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 	5
<p>H 2. TOTAL Score - opportunity for providing habitat Add the scores in the column above</p>	17
<p>H 3.0 Does the wetland unit have indicators that its ability to provide habitat is reduced?</p>	
<p>H 3.1 Indicator of reduced habitat functions (see p. 75) Do the areas of open water in the wetland unit 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)</p> <p style="text-align: center;">YES = - 5 points <input checked="" type="radio"/> NO = 0 points</p>	Points will be subtracted
<p>Total Score for Habitat Functions – add the points for H 1, H 2, and H 3 and record the result on p. 1</p>	30

Comments

27

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland unit meets the attributes described below and circle the appropriate Category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All units should also be characterized based on their functions.

Wetland Type <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	Category
<p>SC 1.0 Vernal pools (see p. 79)</p> <p>Is the wetland unit less than 4000 ft², and does it meet at least two of the following criteria?</p> <ul style="list-style-type: none"> — 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 120 days during the "wet" season. <p>YES = Go to SC 1.1 NO - not a vernal pool</p> <p>SC 1.1 Is the vernal pool relatively undisturbed in February and March?</p> <p>YES = Go to SC 1.2 NO - not a vernal pool with special characteristics</p>	
<p>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.)?</p> <p>YES = Category II NO = Category III</p>	<p>Cat. II Cat. III</p>
<p>SC 2.0 Alkali wetlands (see p. 81)</p> <p>Does the wetland unit meets one of the following two criteria?</p> <ul style="list-style-type: none"> — 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. <p>OR does the wetland unit meets two of the following three sub-criteria?</p> <ul style="list-style-type: none"> — 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. <p>YES = Category I NO - not an alkali wetland</p>	<p>Cat. I</p>

Wetland name or number B

WETLAND RATING FORM - EASTERN WASHINGTON

Version 2 - Updated June 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland B Date of site visit: 6/12/7

Rated by Lara Thoreson, Flogan Trained by Ecology? Yes No Date of training Spring 2006

SEC: 1 TOWNSHIP: 19 RANGE: 14 Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 3 Estimated size 24 ac

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I II III IV

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

Score for "Water Quality" Functions
 Score for Hydrologic Functions
 Score for Habitat Functions
TOTAL score for functions

<u>22</u>
<u>6</u>
<u>18</u>
<u>46</u>

Category based on SPECIAL CHARACTERISTICS of wetland

I II III Does not Apply

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

III

Summary of basic information about the wetland unit

Wetland Type	Wetland Class	
Vernal Pool	Depressional	<input checked="" type="checkbox"/>
Alkali	Riverine	<input type="checkbox"/>
Natural Heritage Wetland	Lake-fringe	<input type="checkbox"/>
Bog	Slope	<input type="checkbox"/>
Forest		<input type="checkbox"/>
None of the above	Check if unit has multiple HGM classes present	<input type="checkbox"/>

27

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
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		X
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. 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

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

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

The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

At least 30% of the open water area is deeper than 3 m (10 ft)?

NO

- go to Step 2

YES - The wetland class is **Lake-fringe (lacustrine fringe)**

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

The wetland is on a slope (*slope can be very gradual*),

The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

The water leaves the wetland **without being impounded**?

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

27

Wetland name or number B

HGM Classes Within One Delineated Wetland Boundary	Class to Use for Rating
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.

27

D Depressional Wetlands		Points
WATER QUALITY FUNCTIONS - Indicators that the wetland functions to improve water quality		(Only 1 score per box)
D	D 1.0 Does the wetland unit have the potential to improve water quality? (see p. 38)	
D	D 1.1 Characteristics of surface water flows out of the wetland unit: Wetland has no surface water outlet - points = 5 Wetland has an intermittently flowing outlet - points = 3 Wetland has a highly constricted permanently flowing outlet - ^{DITCH} culvert points = <u>3</u> Wetland has a permanently flowing surface outlet - points = 1	3
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions of soil types) YES <u>NO</u> points = <u>3</u> NO points = 0	3
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation for > 2/3 of area points = <u>3</u> 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 Map of Cowardin vegetation classes	Figure 5
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 > 1/2 total area of wetland points = 3 Area seasonally ponded is 1/4 - 1/2 total area of wetland points = 1 Area seasonally ponded is < 1/4 total area of wetland points = <u>0</u> NOTE: See text for indicators of seasonal and permanent inundation/flooding. Map of Hydroperiods	Figure 0 * DITCHED
D	Total for D 1 Add the points in the boxes above	11
D	D 2. Does the wetland unit have the opportunity to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. * Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 ft of wetland * A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other _____ YES multiplier is <u>2</u> 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	22

Wetland name or number B

D Depressional Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion		Points (only 1 score per box)
D	D 3.0 Does the wetland unit 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 unit: Wetland has no surface water outlet points = 8 Wetland has an intermittently flowing outlet points = 4 Wetland has a highly constricted permanently flowing outlet <u>points = 4</u> Wetland has a permanently flowing surface outlet points = 0	4
D	D 3.2 Depth of storage during wet periods: <i>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)</i> 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 = <u>0</u> No marks above 6 in. or wetland has only saturated soils points = 0	2
D	Total for D 3 Add the points in the boxes above	6
D	D 4.0 Does the wetland unit have the opportunity to reduce flooding and erosion? <i>Answer NO if the major source of water is groundwater, irrigation return flow, or water levels in the wetland are controlled by a reservoir.</i> <i>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.</i> — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other _____ YES multiplier is 2 <u>(NO)</u> multiplier is 1	(see p. 42) multiplier <u>1</u>
D	TOTAL - Hydrologic Functions Multiply the score from D3 by the multiplier in D4 <i>Record score on p. 1 of field form.</i>	6

Comments

* UPSTREAM OF WETLAND A.

27

<i>These questions apply to wetlands of all HGM classes.</i>		Points (only 1 score per box)							
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat									
H 1. Does the wetland unit have the potential to provide habitat for many species?		Figure <u>2</u>							
<p>H 1.1 Categories of vegetation structure (see p.62) Check the vegetation classes (as defined by Cowardin) and heights of emergents present. Size threshold for each class or height category is 1/4 acre or more than 10% of the area if unit is < 2.5 acres.</p> <p> <input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants 0-12 in. (0 - 30 cm) high are the highest layer and have > 30% cover <input checked="" type="checkbox"/> Emergent plants >12 - 40 in. (>30 - 100cm) high are the highest layer with >30% cover <input type="checkbox"/> Emergent plants > 40 in. (> 100cm) high are the highest layer with >30% cover <input checked="" type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input type="checkbox"/> Forested (areas where trees have >30% cover) </p> <p>Add the number of vegetation types that qualify. If you have:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>4-6 types</td> <td>points = 3</td> </tr> <tr> <td>3 types</td> <td>points = 2</td> </tr> <tr> <td>2 types</td> <td><u>points = 1</u></td> </tr> <tr> <td>1 type</td> <td>points = 0</td> </tr> </table>			4-6 types	points = 3	3 types	points = 2	2 types	<u>points = 1</u>	1 type
4-6 types	points = 3								
3 types	points = 2								
2 types	<u>points = 1</u>								
1 type	points = 0								
Map of Cowardin vegetation classes and areas with different heights of emergents									
<p>H 1.2. Is one of the vegetation types "aquatic bed?" (see p. 64) YES = 1 point <u>NO</u> = 0 points</p>		0							
<p>H 1.3. Surface Water (see p.65) H 1.3.1 Does the unit have areas of "open" water (without herbaceous or shrub plants) over at least 1/4 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 <u>NO</u> = go to H 1.3.2 H 1.3.2 Does the unit have an intermittent or permanent stream within its boundaries, or along one side, over at least 1/4 acre or 10% of its area, AND that has an unvegetated bottom (answer yes only if H 1.3.1 is NO)? YES = 3 points <u>NO</u> = 0 points </p> <p style="text-align: right;"><i>DITCH not 10% of AREA</i> Map showing areas of open water</p>		0							
<p>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 Eurasian Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites, Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)</p> <p>If you counted: > 9 species <u>points = 2</u> 4-9 species <u>points = 1</u> # of species _____ < 4 species points = 0 points</p> <p>List species below if you wish</p>		2							

3

27

<p>H 1.5. Interspersion of habitats (see p. 67) Decided from the diagrams below whether interspersion between categories of vegetation (described in H 1.1), or categories and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <p>None = 0 points Low = 1 point Moderate = 2 points</p> <p>High = 3 points [Riparian braided channel]</p> <p>NOTE: If you have four or more vegetation categories or three vegetation categories and open water the rating is always "high". Use maps from H1.1 and H1.3</p>	<p>Figure</p> <p>2</p>
<p>H 1.6. Special Habitat Features: (see p. 68) Check the habitat features that are present in the wetland unit. The number of checks is the number of points you put into the next column.</p> <p><input type="checkbox"/> Loose rocks larger than 4" or large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.</p> <p><input type="checkbox"/> Cattails or bulrushes are present within the unit.</p> <p><input type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland unit or within 30 m (100ft) of the edge.</p> <p><input type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded. The presence of "yellow flag" <i>Iris</i> is a good indicator of vegetation in areas permanently ponded.</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>45 degree slope) OR signs of recent beaver activity</p> <p><input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)</p> <p style="text-align: right;">Maximum score possible = 6</p>	<p>0</p>
<p style="text-align: right;">TOTAL Potential to provide habitat Add the scores in the column above</p>	<p>5</p>
<p>Comments</p>	

H 2.0 Does the wetland have the opportunity to provide habitat for many species?	Figure
<p>H 2.1 Buffers (see p. 71) Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed." Relatively undisturbed also means no grazing, no landscaping, no daily human use, and no structures or paving within undisturbed part of buffer.</p> <ul style="list-style-type: none"> — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference 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 <p>If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> 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 <p>Aerial photo showing buffers</p>	<p>2</p>
<p>H 2.2 Wet Corridors (see p. 72)</p> <p>H 2.2.1 Is the wetland unit part of a relatively undisturbed and unbroken, > 30 ft wide, 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</p> <p>H 2.2.2 Is the unit part of a relatively undisturbed and unbroken, > 30 ft wide, 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? <input checked="" type="checkbox"/> YES = 2 points (go to H 2.3) NO go to H 2.2.3</p> <p>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</p>	<p>2</p> <p>4</p>

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 unit?
NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions.

- 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 than 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**

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

Comments

<p>H 2.4 Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 76)</p> <ul style="list-style-type: none"> — The wetland unit 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 	5	
<p>H 2. TOTAL Score - opportunity for providing habitat Add the scores in the column above</p>		13
<p>H 3.0 Does the wetland unit have indicators that its ability to provide habitat is reduced?</p>		
<p>H 3.1 Indicator of reduced habitat functions (see p. 75) Do the areas of open water in the wetland unit 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)</p> <p style="text-align: center;">YES = - 5 points NO = 0 points</p>	<p>Points will be subtracted</p> <p>0</p>	
<p>Total Score for Habitat Functions – add the points for H 1, H 2, and H 3 and record the result on p. 1</p>		18

Comments

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland unit meets the attributes described below and circle the appropriate Category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All units should also be characterized based on their functions.

Wetland Type	Category
<p><i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met</i></p>	
<p>SC 1.0 Vernal pools (see p. 79)</p> <p>Is the wetland unit less than 4000 ft², and does it meet at least two of the following criteria?</p> <ul style="list-style-type: none"> — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>NOTE: If you find perennial, "obligate", wetland plants the wetland is probably NOT a vernal pool</i> — 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 120 days during the "wet" season. <p>YES = Go to SC 1.1 NO = not a vernal pool</p> <p>SC 1.1 Is the vernal pool relatively undisturbed in February and March?</p> <p>YES = Go to SC 1.2 NO = not a vernal pool with special characteristics</p>	
<p>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.)?</p> <p>YES = Category II NO = Category III</p>	<p>Cat. II Cat. III</p>
<p>SC 2.0 Alkali wetlands (see p. 81)</p> <p>Does the wetland unit meets one of the following two criteria?</p> <ul style="list-style-type: none"> — 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. <p>OR does the wetland unit meets two of the following three sub-criteria?</p> <ul style="list-style-type: none"> — 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. <p>YES = Category I NO = not an alkali wetland</p>	<p>Cat. I</p>

27

WETLAND RATING FORM – EASTERN WASHINGTON

Version 2 - Updated June 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland C Date of site visit: 6/2/7

Rated by Lara Thoresen, J. Lopez Trained by Ecology? Yes No Date of training Spring 2006

SEC: 1 TOWNSHIP: 19 RANGE: 14 Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 3 Estimated size < 1000 SF

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I II III IV

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

Score for "Water Quality" Functions
 Score for Hydrologic Functions
 Score for Habitat Functions
TOTAL score for functions

12
8
8
28

Category based on SPECIAL CHARACTERISTICS of wetland

I II III Does not Apply

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

IV

Summary of basic information about the wetland unit

Wetland Type	Wetland Class	
Vernal Pool	Depressional	<input checked="" type="checkbox"/>
Alkali	Riverine	<input type="checkbox"/>
Natural Heritage Wetland	Lake-fringe	<input type="checkbox"/>
Bog	Slope	<input type="checkbox"/>
Forest		<input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/> Check if unit has multiple HGM classes present	<input type="checkbox"/>

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
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		X
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. 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

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

1. Does the entire wetland unit **meet both** of the following criteria?
 The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
 At least 30% of the open water area is deeper than 3 m (10 ft)?
 NO - go to Step 2 **YES** - The wetland class is **Lake-fringe (lacustrine fringe)**

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

NO OUTLET

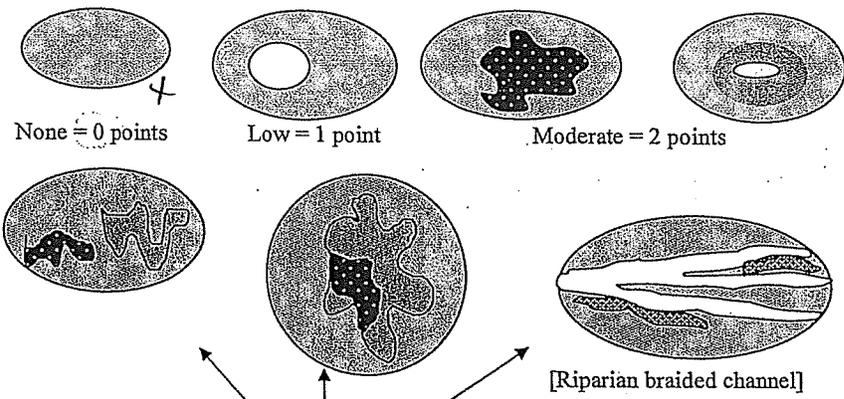
5. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH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

Wetland name or number C

HGM Classes Within One Delineated Wetland Boundary	Class to Use for Rating
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		(Only 1 score per box)
D	D 1.0 Does the wetland unit have the potential to improve water quality?	(see p. 38)
	D 1.1 Characteristics of surface water flows out of the wetland unit:	
D	Wetland has no surface water outlet - points = <u>5</u>	5
	Wetland has an intermittently flowing outlet points = 3	
	Wetland has a highly constricted permanently flowing outlet points = 3	
	Wetland has a permanently flowing surface outlet points = 1	
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions of soil types)	
	YES points = 3	0
	NO points = <u>0</u>	
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)	Figure
	Wetland has persistent, ungrazed, vegetation for > 2/3 of area points = 5	1
	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 = <u>1</u>	
	Wetland has persistent, ungrazed vegetation < 1/10 of area points = 0	
	<small>Map of Cowardin vegetation classes</small>	
D	D 1.4 Characteristics of seasonal ponding or inundation.	Figure
	<i>This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.</i>	0
	Area seasonally ponded is > 1/2 total area of wetland points = 3	
	Area seasonally ponded is 1/4 - 1/2 total area of wetland points = 1	
	Area seasonally ponded is < 1/4 total area of wetland points = <u>0</u>	
	NOTE: See text for indicators of seasonal and permanent inundation/flooding.	
	<small>Map of Hydroperiods</small>	
D	Total for D 1	Add the points in the boxes above
		6
D	D 2. Does the wetland unit have the opportunity to improve water quality?	
	Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.	
	<ul style="list-style-type: none"> <input type="checkbox"/> Grazing in the wetland or within 150 ft <input type="checkbox"/> Untreated stormwater discharges to wetland <input checked="" type="checkbox"/> Tilled fields or orchards within 150 ft of wetland - <i>Actively hayed</i> <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input type="checkbox"/> Residential, urban areas, golf courses are within 150 ft of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input type="checkbox"/> Other _____ 	
	<u>YES</u> multiplier is 2 NO multiplier is 1	multiplier
		2
D	TOTAL - Water Quality Functions	
	Multiply the score from D1 by the multiplier in D2	
	<i>Record score on p. 1 of field form</i>	12

<p>H 1.5. Interspersion of habitats (see p. 67) Decided from the diagrams below whether interspersion between categories of vegetation (described in H 1.1), or categories and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p>  <p>None = 0 points Low = 1 point Moderate = 2 points</p> <p>High = 3 points</p> <p>[Riparian braided channel]</p> <p>NOTE: If you have four or more vegetation categories or three vegetation categories and open water the rating is always "high". Use maps from H1.1 and H1.3</p>	<p>Figure</p> <p>0</p>
<p>H 1.6. Special Habitat Features (see p. 68) Check the habitat features that are present in the wetland unit. The number of checks is the number of points you put into the next column.</p> <p><input type="checkbox"/> Loose rocks larger than 4" or large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.</p> <p><input type="checkbox"/> Cattails or bulrushes are present within the unit.</p> <p><input type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland unit or within 30 m (100ft) of the edge.</p> <p><input type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded. The presence of "yellow flag" <i>Iris</i> is a good indicator of vegetation in areas permanently ponded.</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>45 degree slope) OR signs of recent beaver activity</p> <p><input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)</p> <p style="text-align: right;">Maximum score possible = 6</p>	<p>0</p>
<p>TOTAL Potential to provide habitat Add the scores in the column above</p>	<p>7</p>
<p>Comments</p>	

H 2.0 Does the wetland have the opportunity to provide habitat for many species?	Figure
<p>H 2.1 Buffers (see p. 71) Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed." Relatively undisturbed also means no grazing, no landscaping, no daily human use, and no structures or paving within undisturbed part of buffer.</p> <ul style="list-style-type: none"> — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. 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 <p>If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> 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 <p><u>Aerial photo showing buffers</u></p>	<p>2</p>
<p>H 2.2 Wet Corridors (see p. 72)</p> <p>H 2.2.1 Is the wetland unit part of a relatively undisturbed and unbroken, > 30 ft wide, 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).</p> <p>YES = 4 points (go to H 2.3) NO = go to H 2.2.2</p> <p>H 2.2.2 Is the unit part of a relatively undisturbed and unbroken, > 30 ft wide, 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?</p> <p>YES = 2 points (go to H 2.3) NO go to H 2.2.3</p> <p>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)?</p> <p>YES = 1 point NO = 0 points</p>	<p>1</p>

3

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 unit?

NOTE: the connections **do not** have to be relatively undisturbed. These are DFW definitions.

Check with your local DFW biologist if there are any questions.

- 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 than 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**

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list.

Nearby wetlands are addressed in question H 2.4)

2

Comments

<p>H 2.4 Landscape (choose the <i>one</i> description of the landscape around the wetland that best fits) (see p. 76)</p> <ul style="list-style-type: none"> — The wetland unit 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 <u>A</u> 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
<p>H 2. TOTAL Score - opportunity for providing habitat Add the scores in the column above</p>	
<p>H 3.0 Does the wetland unit have indicators that its ability to provide habitat is reduced?</p>	
<p>H 3.1 Indicator of reduced habitat functions (see p. 75) Do the areas of open water in the wetland unit 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)</p> <p style="text-align: center;">YES = - 5 points NO = 0 points</p>	<p>Points will be subtracted</p>
<p>Total Score for Habitat Functions – add the points for H 1, H 2, and H 3 and record the result on p. 1</p>	

Comments

WETLAND RATING FORM - EASTERN WASHINGTON

Version 2 - Updated June 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland D Date of site visit: 6/12/7

Rated by Lara Thoreson Ilgner Trained by Ecology? Yes No Date of training Spring 2006

SEC: 1 TOWNSHIP: 19 RANGE: 14 Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 3 Estimated size 1.05

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I II III IV

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

Score for "Water Quality" Functions
 Score for Hydrologic Functions
 Score for Habitat Functions
TOTAL score for functions

6
2
11
19

Category based on SPECIAL CHARACTERISTICS of wetland

I II III Does not Apply

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

IV

Summary of basic information about the wetland unit

Wetland Type	Wetland Class
Vernal Pool	Depressional
Alkali	Riverine
Natural Heritage Wetland	Lake-fringe
Bog	Slope <input checked="" type="checkbox"/>
Forest	
None of the above	Check if unit has multiple HGM classes present <input type="checkbox"/>

Wetland name or number 9

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
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> 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.		<i>A</i>

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

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

1. Does the entire wetland unit **meet both** of the following criteria?
 - The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
 - At least 30% of the open water area is deeper than 3 m (10 ft)?

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

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

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

Wetland name or number 0

HGM Classes Within One Delineated Wetland Boundary	Class to Use for Rating
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.

S Slope Wetlands		Points
WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality		(only 1 score per box)
S	S 1.0 Does the wetland have the potential to improve water quality?	(see p.56)
S	<p>S 1.1 Characteristics of average slope of wetland:</p> <p>Slope is 1% or less (a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance) points = <u>3</u></p> <p>Slope is between 1% and 2% points = 2</p> <p>Slope is more than 2% but less than 5% points = 1</p> <p>Slope is 5% or greater points = 0</p>	3
S	<p>S 1.2 The soil 2 inches below the surface is clay or organic (use NRCS definitions of soil types)</p> <p>YES = 3 points NO = <u>0</u> points</p>	0
S	<p>S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches. X</p> <p>Dense, ungrazed, herbaceous vegetation > 90% of the wetland unit points = <u>6</u></p> <p>Dense, ungrazed, herbaceous vegetation > 1/2 of unit points = 3</p> <p>Dense, woody, vegetation > 1/2 of unit points = 2</p> <p>Dense, ungrazed, herbaceous vegetation > 1/4 of unit points = 1</p> <p>Does not meet any of the criteria above for herbaceous vegetation points = <u>0</u></p> <p>Area <u>3</u> Aerial photo or map with vegetation polygons</p>	Figure 0
S	Total for S 1 <u>periodically grazed</u> Add the points in the boxes above	3
S	<p>S 2.0 Does the wetland have the opportunity to improve water quality?</p> <p>Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</p> <ul style="list-style-type: none"> — Grazing in the wetland or within 150ft — Wetland is a groundwater seep within the Reclamation Area — Untreated stormwater flows through the wetland — Tilled fields or orchards within 150 feet of wetland △ Residential, urban areas, or golf courses are within 150 ft upslope of wetland × Other <u>Bald Pasture</u> <p>YES multiplier is <u>2</u> NO multiplier is 1</p>	(see p.58) multiplier <u>2</u>
S	<p>TOTAL - Water Quality Functions Multiply the score from S1 by the multiplier in S2</p> <p>Record score on p. 1 of field form</p>	<u>6</u>

S Slope Wetlands		Points
HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation		(only 1 score per box)
S	S 3.0 Does the wetland unit have the potential to reduce flooding and stream erosion?	(see p. 59)
S	<p>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. See question S 1.3 for definition of dense and uncut. Rigid means that the stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows.</p> <p>Dense, uncut, rigid vegetation covers > 90% of the area of the unit points = 6 Dense, uncut, rigid vegetation > 1/2 - 90% area of unit points = 3 Dense, uncut, rigid vegetation > 1/4 - 1/2 of unit points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0</p>	0
S	<p>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.</p> <p>YES points = 2 NO points = 0</p>	2
S	Total for S3 Add the points in the boxes above	2
S	<p>S 4.0 Does the wetland unit have the opportunity to reduce flooding and erosion? (see p. 61)</p> <p>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).</p> <p>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.</p> <p>— Wetland has surface runoff that can cause flooding problems downgradient — Other _____</p> <p>YES multiplier is 2 NO multiplier is 1</p>	multiplier 1
S	<p>TOTAL - Hydrologic Functions Multiply the score from S3 by the multiplier in S4</p> <p>Record score on p. 1 of field form</p>	2

Comments

Wetland is located upstream of large wetland that reduces majority of flood flows (Wetland A).

<p>H 1.5. Interspersion of habitats (see p. 67) Decided from the diagrams below whether interspersion between categories of vegetation (described in H 1.1), or categories and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <p>None = 0 points Low = 1 point Moderate = 2 points</p> <p>High = 3 points [Riparian braided channel]</p> <p>NOTE: If you have four or more vegetation categories or three vegetation categories and open water the rating is always "high". Use maps from H1.1 and H1.3</p>	<p>Figure</p> <p>0</p>
<p>H 1.6. Special Habitat Features: (see p. 68) Check the habitat features that are present in the wetland unit. The number of checks is the number of points you put into the next column.</p> <p><input type="checkbox"/> Loose rocks larger than 4" or large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.</p> <p><input type="checkbox"/> Cattails or bulrushes are present within the unit.</p> <p><input type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland unit or within 30 m (100ft) of the edge.</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>45 degree slope) OR signs of recent beaver activity</p> <p><input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)</p> <p style="text-align: right;">Maximum score possible = 6</p>	<p>0</p> <p>0</p>
<p>TOTAL Potential to provide habitat Add the scores in the column above</p>	<p>1</p>
<p>Comments</p>	

H 2.0 Does the wetland have the opportunity to provide habitat for many species?	Figure
<p>H 2.1 Buffers (see p. 71) <i>Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed." Relatively undisturbed also means no grazing, no landscaping, no daily human use, and no structures or paving within undisturbed part of buffer.</i></p> <ul style="list-style-type: none"> — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference 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 <p>If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> 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 <p><i>Aerial photo showing buffers</i></p>	<p>2</p>
<p>H 2.2 Wet Corridors (see p. 72)</p> <p>H 2.2.1 Is the wetland unit part of a relatively undisturbed and unbroken, > 30 ft wide, vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? (<i>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</i>).</p> <p>YES = 4 points (go to H 2.3) NO = go to H 2.2.2</p> <p>H 2.2.2 Is the unit part of a relatively undisturbed and unbroken, > 30 ft wide, 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?</p> <p>YES = 2 points (go to H 2.3) NO go to H 2.2.3</p> <p>H 2.2.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake (<i>do not include man-made ditches</i>)?</p> <p>YES = 1 point NO = 0 points</p>	<p>3</p>

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 unit?

NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions.

- 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 than 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

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

2

Comments

<p>H 2.4 Landscape (choose the <i>one</i> description of the landscape around the wetland that best fits) (see p. 76)</p> <ul style="list-style-type: none"> — The wetland unit 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 <input checked="" type="checkbox"/> 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 	5
<p>H 2. TOTAL Score - opportunity for providing habitat Add the scores in the column above</p>	10
<p>H 3.0 Does the wetland unit have indicators that its ability to provide habitat is reduced?</p>	
<p>H 3.1 Indicator of reduced habitat functions (see p. 75) Do the areas of open water in the wetland unit 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)</p> <p style="text-align: center;">YES = - 5 points NO = 0 points</p>	<p>Points will be subtracted</p>
<p>Total Score for Habitat Functions – add the points for H 1, H 2, and H 3 and record the result on p. 1</p>	
<p>11</p>	

Comments

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadow Springs</u>	Date: <u>6/7/07</u>
Applicant/owner: <u>BGE of SAPPHIRE STRIES</u>	County: <u>Kittitas</u>
Investigator(s): <u>I. Logan, A. Merrill</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	S/T/R: <u>SL, TA, RVH</u>
Is the site significantly disturbed (atypical situation)? <input checked="" type="radio"/> yes <input type="radio"/> no	Community ID: <u>ORLANDO N of</u>
Is the area a potential Problem Area? <input checked="" type="radio"/> yes <input type="radio"/> no	Transect ID: <u>NOV of (015-034) WLA</u>
Explanation of atypical or problem area:	Plot ID: <u>DP-1</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Dactylis glomerata</u>	<u>H</u>	<u>40</u>	<u>FACU</u>				
<u>Phalaris arundinacea</u>	<u>H</u>	<u>50</u>	<u>FACW</u>				
<u>Chrysanthemum leucanth</u>	<u>H</u>	<u>20</u>	<u>NL</u>	<u>← noxious weed</u>			
<u>Ranunculus acris</u>	<u>H</u>	<u>10</u>	<u>FACW</u>				
<u>Carex sp. 3</u>	<u>H</u>	<u>5</u>	<u>FAC wetter</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 50%

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	_____	Physiological/reproductive adaptations	_____
Morphological adaptations	_____	Wetland plant database	<u>X</u>
Technical Literature	_____	Personal knowledge of regional plant communities	_____
		Other (explain)	_____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? yes no

Based on: _____ soil temp (record temp _____)
 time of year other (explain)

Dept. of inundation: _____ inches

Depth to free water in pit: _____ inches

Depth to saturated soil: _____ inches

Check all that apply & explain below:

Stream, Lake or gage data: _____
 Aerial photographs: _____ Other: _____

Wetland hydrology present? yes no

Rationale for decision/Remarks:

Water Marks: <input checked="" type="radio"/> yes <input type="radio"/> no	Sediment Deposits: <input checked="" type="radio"/> yes <input type="radio"/> no
on _____	
Drift Lines: <input checked="" type="radio"/> yes <input type="radio"/> no	Drainage Patterns: <input checked="" type="radio"/> yes <input type="radio"/> no
Oxidized Root (live roots) Channels <12 in. <input checked="" type="radio"/> yes <input type="radio"/> no	Local Soil Survey: <input checked="" type="radio"/> yes <input type="radio"/> no
FAC Neutral: <input checked="" type="radio"/> yes <input type="radio"/> no	Water-stained Leaves <input checked="" type="radio"/> yes <input type="radio"/> no
Other (explain): _____	

No saturation observed. Ditch to the south appears to capture hydrology (surface of ground water runoff)

SOILS

Map Unit Name Chickseil
(Series & Phase)

Drainage Class Somewhat poorly drained

Taxonomy (subgroup) Fine, mixed, Superactive
MOLC Xeric Argialbolls

Field observations confirm Yes No

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-13	A	10YR 2/1	-	-	loam	
13-20+	B	9Y 5/10Y	10YR 4/6	PROMINENT MANY COARSE	Silty clay	
					occasional rocks and sand deposits	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:
Soils have strong hydric indicators.

Wetland Determination (circle)

Hydrophytic vegetation present? yes no

Hydric soils present? yes no Is the sampling point within a wetland? yes no

Wetland hydrology present? yes

Rationale/Remarks:

Wetland criteria not met.

NOTES:

DP-1 is located in powerline corridor, north of ditch and NW portion of Meadow Springs. Corridor/leasehold is primarily upland meadow with one major channel/ditch that conveys H₂O W to E. Meadow is actively/regularly hayed (Wayne Nelsen pers comm). Other small ditches run N-S conveying H₂O to main ditch.

Revised 4/97

DATA FORM 1 (Revised)
Routine Wetland Determination
 (WA State Wetland Delineation Manual or
 1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadow Springs</u>	Date: <u>6/7/07</u>
Applicant/owner: <u>B.C. Sapphire Skies</u>	County: <u>Lincoln</u>
Investigator(s): <u>A. Merrill, I. Logan</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Community ID: <u>WJL A</u>
Is the site significantly disturbed (atypical situation)? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Transect ID: _____
Is the area a potential Problem Area? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Plot ID: <u>DP-2</u>
Explanation of atypical or problem area: _____	

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Alnus vitifolia</u>	<u>T</u>	<u>100</u>	<u>EXW</u>				
<u>Rhynchospora arvensis</u>	<u>H</u>	<u>70</u>	<u>FAC</u>				
<u>Scirpus atrovirens</u>	<u>H</u>	<u>10</u>	<u>FAC-</u>				
<u>Sagittaria triangularis</u>	<u>H</u>	<u>20</u>	<u>VI</u>				
<u>Carex sp.</u>	<u>H</u>	<u>40</u>	<u>FAC or wetter</u>				
<u>Utricularia viridis</u>	<u>H</u>	<u>20</u>	<u>FACW</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 100

Check all indicators that apply & explain below:

- | | | | |
|---|-------|--|----------|
| Visual observation of plant species growing in areas of prolonged inundation/saturation | _____ | Physiological/reproductive adaptations | _____ |
| Morphological adaptations | _____ | Wetland plant database | <u>X</u> |
| Technical Literature | _____ | Personal knowledge of regional plant communities | _____ |
| | | Other (explain) | _____ |

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks: _____

HYDROLOGY

Is it the growing season? yes no

Based on: DATE soil temp (record temp _____)
 other (explain) _____

Dept. of inundation: — inches

Depth to free water in pit: 9 inches

Depth to saturated soil: 0 inches

Water Marks: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	Sediment Deposits: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
Drift Lines: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	Drainage Patterns: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
Oxidized Root (live roots) Channels <12 in. yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	Local Soil Survey: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
FAC Neutral: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Water-stained Leaves yes <input type="checkbox"/> no <input checked="" type="checkbox"/>

Check all that apply & explain below:

Stream, Lake or gage data: _____

Aerial photographs: Other: _____

Other (explain): _____

Wetland hydrology present? yes no

Rationale for decision/Remarks: Sols. are saturated to surface throughout large area

SOILS

Map Unit Name Quicksell
(Series & Phase)

Drainage Class Somewhat poorly drained

Field observations confirm mapped type? Yes No

Taxonomy (subgroup) Five mixed, suberactive, Mosaic Xeric Argabolls

Profile Description						
Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-10	A1	10YR 7/1	-	-	loam - high organics	
10-18+	A2	10YR 7/1	-	-	silty loam	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:

Soils are black 10YR 7/1 to 0-18+

Wetland Determination (circle)

- Hydrophytic vegetation present? yes no
- Hydric soils present? yes no
- Wetland hydrology present? yes no
- Is the sampling point within a wetland? yes no

Rationale/Remarks:

All 3 criteria are met

NOTES:

DP-2 is located in WLA, near NW corner, within PFO community. WC A includes an E-W ditch that extends near the southern boundary or powerline easement. Wetland contains much s loam soils that are saturated to surface extensively throughout

Revised 4/9

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meatah Springs</u>	Date: <u>6/7/07</u>
Applicant/owner: <u>BBB / SAPPHIRE SERIES</u>	County: <u>Kittitas</u>
Investigator(s): <u>J. Logan, A. Merrill</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	S/T/R: <u>812, T19, R14</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	Community ID: <u>A WL A</u>
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	Transect ID:
Explanation of atypical or problem area:	Plot ID: <u>DP-3</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<i>Scirpus microcarpus</i>	H	50	OBL				
<i>Bolbosium ciliatum</i>	H	10	FACW				
<i>Festuca occidentalis</i>	H	70	NL				
<i>Equisetum arvense</i>	H	20	FAC				
<i>Potamogeton frigidus</i>	H	20	FACW				
<i>Alnus sitchensis</i>	S	10	FACW				

HYDROPHYTIC VEGETATION INDICATORS:

Not Listed - NL = however similar species are FAC+

% of dominants: OBL, FACW, & FAC 70

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation _____
 Morphological adaptations _____
 Technical Literature _____

Physiological/reproductive adaptations _____
 Wetland plant database X
 Personal knowledge of regional plant communities _____
 Other (explain) _____

Hydrophytic vegetation present? yes no
 Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? yes no

Based on: _____ soil temp (record temp _____)
 time of year other (explain)

Dept. of inundation: _____ inches

Depth to free water in pit: 2 inches

Depth to saturated soil: surface inches

Check all that apply & explain below:
 Stream, Lake or gage data: _____
 Aerial photographs: _____ Other: _____

Water Marks: yes no

Drift Lines: yes no

Oxidized Root (live roots) Channels <12 in. yes no

FAC Neutral: yes no

Sediment Deposits: yes no

Local Soil Survey: yes no

Water-stained Leaves yes no

Wetland hydrology present? yes no
 Rationale for decision/Remarks:

Soil saturated to surface; free water observed. Flooding at 10' to the south.

SOILS

Map Unit Name Quicksell
(Series & Phase)

Drainage Class Somewhat poorly drained
Field observations confirm Yes No

Taxonomy (subgroup) See description of DPZ

mapped type?

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-10	A	10YR 2/1	-	-	loam	
10-16	B	10YR 2/2	7.5YR 4/4	pron, coarse, many	loam	

Hydric Soil Indicators: (check all that apply)

<input type="checkbox"/> Histosol	<input checked="" type="checkbox"/> Matrix chroma ≤ 2 with mottles
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Mg or Fe Concretions
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National/Local Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma (=1) matrix	<input type="checkbox"/> Other (explain in remarks)

Hydric soils present? yes no
Rationale for decision/Remarks:
chroma 2 w/ no mottles observed.

Wetland Determination (circle)

Hydrophytic vegetation present?	<u>yes</u> no	Is the sampling point within a wetland?	<u>yes</u> no
Hydric soils present?	<u>yes</u> no		
Wetland hydrology present?	<u>yes</u> no		

Rationale/Remarks:
All 3 wetland criteria met.

NOTES:
DP-3 is located south of electric lines, north of irrigation ditches in PEM area of Wetland A.

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project/Site: <u>MEADOW SPRINGS</u>	Date: <u>6/8/07</u>
Applicant/owner: <u>BCE/Sapphire Steels</u>	County: <u>KITITAS</u>
Investigator(s): <u>LT, AM, JL</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	S/TR: <u>S1, T1A, P14</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	Community ID: <u>25 near WL</u>
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	Transect ID: <u>A</u>
Explanation of atypical or problem area:	Plot ID: <u>DP-4</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<i>Festuca occidentalis</i>	H	70	NL	<i>Ranunculus acris</i>	H	5	FAC
<i>Phleum pratensis</i>	H	10	FAC	<i>Juncus ensolatus</i>	H	10	FACW
<i>Ranunculus uncinatus</i>	H	10	FAC				
<i>Phalaris arundinacea</i>	H	10	FACW				
<i>Trisetum repens</i>	H	30	FAC				
<i>Poa sp.</i>	H	50	FAC				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC > 66 unsure of *Festuca Indicata* NL

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	_____	Physiological/reproductive adaptations	_____
Morphological adaptations	_____	Wetland plant database	<u>X</u>
Technical Literature	_____	Personal knowledge of regional plant communities	_____
		Other (explain)	_____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: yes <input type="radio"/> no <input checked="" type="radio"/>	Sediment Deposits: yes <input type="radio"/> no <input checked="" type="radio"/>
Based on: _____ soil temp (record temp _____) <u>DATE</u> other (explain)	Drift Lines: yes <input type="radio"/> no <input checked="" type="radio"/>	Drainage Patterns: yes <input type="radio"/> no <input checked="" type="radio"/>
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. yes <input type="radio"/> no <input checked="" type="radio"/>	Local Soil Survey: yes <input type="radio"/> no <input checked="" type="radio"/>
Depth to free water in pit: <u>218</u> inches	FAC Neutral: yes <input type="radio"/> no <input checked="" type="radio"/>	Water-stained Leaves yes <input type="radio"/> no <input checked="" type="radio"/>
Depth to saturated soil: <u>218</u> inches	Other (explain):	
Check all that apply & explain below:		
Stream, Lake or gage data: _____		
Aerial photographs: <u>X</u> Other: _____		

Wetland hydrology present? yes no

Rationale for decision/Remarks:

No indicators present.

SOILS

Map Unit Name Quartzell
(Series & Phase)

Drainage Class Somewhat poorly drained

Taxonomy (subgroup) Fine mixed, superactive
mesic Xeric Argialbolls

Field observations confirm Yes No
mapped type?

Profile Description						
Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-18+	A	10YR 7/1	-	-	loam	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:

Soils have low chroma, but no redox features.

Wetland Determination (circle)

Hydrophytic vegetation present? yes no
 Hydric soils present? yes no Is the sampling point yes no
 within a wetland?
 Wetland hydrology present? yes no

Rationale/Remarks:

Not all 3 criteria are met.

NOTES:

DP-4 is located north of PEM portion of Wetland A. Area has deeper loam soils that permit infiltration of surface runoff.

27

DATA FORM 1 (Revised)
Routine Wetland Determination
 (WA State Wetland Delineation Manual or
 1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadow Springs</u>	Date: <u>6/8/07</u>
Applicant/owner: <u>BCE / Sapphire Skies</u>	County: <u>WA</u>
Investigator(s): <u>J. Dugan, A. Merrill</u>	State: <u>Washing</u>
	S/T/R: <u>S12, T19, R14</u>
Do Normal Circumstances exist on the site? Is the site significantly disturbed (atypical situation)? Is the area a potential Problem Area?	<input checked="" type="radio"/> yes <input type="radio"/> no <input type="radio"/> yes <input checked="" type="radio"/> no <input type="radio"/> yes <input checked="" type="radio"/> no
Explanation of atypical or problem area:	Community ID: <u>↓</u> Transect ID: Plot ID: <u>DP-5</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Scirpus microcarpus</u>	<u>H</u>	<u>25</u>	<u>OBL</u>				
<u>Phleum pratense</u>	<u>H</u>	<u>10</u>	<u>FAC-</u>				
<u>Carex rostrata (?)</u>	<u>H</u>	<u>25</u>	<u>OBL</u>				
<u>Festuca occidentalis</u>	<u>H</u>	<u>5</u>	<u>NL</u>				
<u>Alnus citchensis</u>	<u>S</u>	<u>15</u>	<u>FACW</u>				
<u>Phalaris arundinacea</u>	<u>H</u>	<u>60</u>	<u>FACW</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 100

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	<u>X</u>	Physiological/reproductive adaptations	<u>X</u>
Morphological adaptations	_____	Wetland plant database	_____
Technical Literature	_____	Personal knowledge of regional plant communities	_____
		Other (explain)	_____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:
All dominant plants are FAC or better

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: yes <input checked="" type="radio"/> no <input type="radio"/>	Sediment Deposits: yes <input checked="" type="radio"/> no <input type="radio"/>
Based on: <u>fine at year</u> soil temp (record temp _____) other (explain)	Drift Lines: yes <input checked="" type="radio"/> no <input type="radio"/>	Drainage Patterns: <input checked="" type="radio"/> yes <input type="radio"/> no
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. yes <input checked="" type="radio"/> no <input type="radio"/>	Local Soil Survey: yes <input checked="" type="radio"/> no <input type="radio"/>
Depth to free water in pit: <u>10</u> inches	FAC Neutral: yes <input type="radio"/> no <input type="radio"/>	Water-stained Leaves yes <input checked="" type="radio"/> no <input type="radio"/>
Depth to saturated soil: <u>5</u> inches	Other (explain):	
Check all that apply & explain below: Stream, Lake or gage data: _____ Aerial photographs: _____ Other: _____		

Wetland hydrology present? yes no

Rationale for decision/Remarks:
Soil saturated at 5"; presence of OBL plants.

SOILS

Map Unit Name Quicksell
(Series & Phase)

Drainage Class Saturated pale, drain

Taxonomy (subgroup) Fine, mixed, superactive
mesic Xeric Argibolls

Field observations confirm mapped type? Yes No

Profile Description						
Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-14	A	10YR 3/1	7.5YR 4/4	Common, ind. med	Sandy loam	
14-60+	B	10YR 3/4	10YR 5/6	None, common, dist.	Gravelly sandy loam	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:
Low chroma matrix observed

Wetland Determination (circle)

- Hydrophytic vegetation present? yes no
- Hydric soils present? yes no
- Wetland hydrology present? yes no
- Is the sampling point within a wetland? yes no

Rationale/Remarks:

All 3 wetland criteria met.

NOTES:

DR-A is located in REM portion of wetland A, between drain & powerlines, 5' S of ditch. Area shows evidence of past agricultural disturbance, and disturbance from powerline construction.

DATA FORM 1 (Revised)
Routine Wetland Determination
 (WA State Wetland Delineation Manual or
 1987 Corps Wetland Delineation Manual)

Project/Site: Meadow Springs Date: 6/8/07
 Applicant/owner: BCE SUPPLY STORES County: Clatsop
 Investigator(s): J. Logan & A. Merrill State: OR
 S/T/R: SIZ, T19, R14
 Do Normal Circumstances exist on the site? yes no
 Is the site significantly disturbed (atypical situation)? yes no
 Is the area a potential Problem Area? yes no
 Explanation of atypical or problem area: _____
 Community ID: 2
 Transect ID: _____
 Plot ID: DP-6

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<i>Festuca occidentalis</i>	H	70	NL				
<i>Juncus effusus</i>	H	10	FACW				
<i>Chrysanthemum leucanth</i>	H	20	NL				
<i>Tanacetum vulgare</i>	H	15	N1				
<u>UNK 2</u>	H	15					

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants: 0BL, FACW, & FAC 100
 Check all indicators that apply & explain below:
 Visual observation of plant species growing in areas of prolonged inundation/saturation _____
 Morphological adaptations _____
 Technical Literature _____
 Physiological/reproductive adaptations _____
 Wetland plant database X
 Personal knowledge of regional plant communities X
 Other (explain) _____

Hydrophytic vegetation present? yes no
 Rationale for decision/Remarks: However - indicator is weak since no other wet species are dominant
Most all other Festucas are FAC & Juncus effusus only other listed species therefore B1

HYDROLOGY

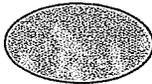
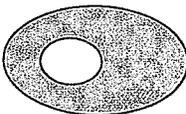
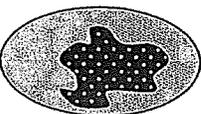
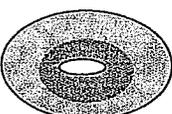
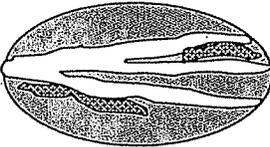
Is it the growing season? yes no
 Based on: _____ soil temp (record temp _____)
fine of year other (explain)
 Dept. of inundation: _____ inches
 Depth to free water in pit: _____ inches
 Depth to saturated soil: _____ inches
 Water Marks: yes no
 Sediment Deposits: yes no
 Drift Lines: yes no
 Drainage Patterns: yes no
 Oxidized Root (live roots) Channels <12 in. yes no
 Local Soil Survey: yes no
 FAC Neutral: yes no
 Water-stained Leaves yes no
 Check all that apply & explain below:
 Stream, Lake or gage data: _____
 Aerial photographs: _____ Other: _____
 Other (explain): _____

Wetland hydrology present? yes no
 Rationale for decision/Remarks: No evidence of wetland hydrology

<i>These questions apply to wetlands of all HGM classes.</i>		Points <small>(only 1 score per box)</small>								
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat										
H 1. Does the wetland unit have the potential to provide habitat for many species?										
<p>H 1.1 Categories of vegetation structure (see p.62) Check the vegetation classes (as defined by Cowardin) and heights of emergents present. Size threshold for each class or height category is ¼ acre or more than 10% of the area if unit is < 2.5 acres.</p> <p style="margin-left: 100px;"><i>Emergent areas are periodically bogged</i></p> <p><input type="checkbox"/> Aquatic bed</p> <p><input checked="" type="checkbox"/> Emergent plants 0-12 in. (0 - 30 cm) high are the highest layer and have > 30% cover</p> <p><input type="checkbox"/> Emergent plants >12 - 40 in. (>30 - 100cm) high are the highest layer with >30% cover</p> <p><input type="checkbox"/> Emergent plants > 40 in. (> 100cm) high are the highest layer with >30% cover</p> <p><input checked="" type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover)</p> <p><input checked="" type="checkbox"/> Forested (areas where trees have >30% cover)</p> <p>Add the number of vegetation types that qualify. If you have:</p> <table style="margin-left: 400px;"> <tr><td>4-6 types</td><td>points = 3</td></tr> <tr><td>3 types</td><td>points = 2</td></tr> <tr><td>2 types</td><td>points = 1</td></tr> <tr><td>1 type</td><td>points = 0</td></tr> </table>		4-6 types	points = 3	3 types	points = 2	2 types	points = 1	1 type	points = 0	<p>Figure 2</p> <p style="font-size: 2em;">2</p>
4-6 types	points = 3									
3 types	points = 2									
2 types	points = 1									
1 type	points = 0									
<small>Map of Cowardin vegetation classes and areas with different heights of emergents</small>										
<p>H 1.2. Is one of the vegetation types "aquatic bed?" (see p. 64) YES = 1 point NO = 0 points</p>		<p style="font-size: 2em;">0</p>								
<p>H 1.3. Surface Water (see p.65)</p> <p>H 1.3.1 Does the unit have areas of "open" water (without herbaceous 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)? <i>Note: answer YES for Lake-fringe wetlands</i> YES = 3 points & go to H 1.4 NO = go to H 1.3.2</p> <p>H 1.3.2 Does the unit have an intermittent or permanent stream within its boundaries, or along one side, over at least ¼ acre or 10% of its area, AND that has an unvegetated bottom (answer yes only if H 1.3.1 is NO)? YES = 3 points NO = 0 points</p> <p style="text-align: center;"><small>Map showing areas of open water</small></p>		<p>Figure 2</p> <p style="font-size: 2em;">3</p>								
<p>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 Eurasian Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites, Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)</p> <p>If you counted: > 9 species points = 2</p> <p> 4-9 species points = 1</p> <p># of species: < 4 species points = 0 points</p> <p>List species below if you wish</p>		<p style="font-size: 2em;">2</p>								

7

27

<p>H 1.5. Interspersion of habitats (see p. 67) Decided from the diagrams below whether interspersion between categories of vegetation (described in H 1.1), or categories and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  None = 0 points </div> <div style="text-align: center;">  Low = 1 point </div> <div style="text-align: center;">  Moderate = 2 points </div> <div style="text-align: center;">  High = 3 points </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  [Riparian braided channel] </div> </div> <p style="text-align: center;">NOTE: If you have four or more vegetation categories or three vegetation categories and open water the rating is always "high". Use maps from H1.1 and H1.3</p>	<p>Figure 2</p> <p style="font-size: 2em;">3</p>
<p>H 1.6. Special Habitat Features: (see p. 68) Check the habitat features that are present in the wetland unit. The number of checks is the number of points you put into the next column.</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Loose rocks larger than 4" or large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream. <input type="checkbox"/> Cattails or bulrushes are present within the unit. <input checked="" type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland unit or within 30 m (100ft) of the edge. <input type="checkbox"/> 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. <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>45 degree slope) OR signs of recent beaver activity <input checked="" type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover) <p style="text-align: right;"><i>Maximum score possible = 6</i></p>	<p style="font-size: 2em;">3</p>
<p>TOTAL Potential to provide habitat Add the scores in the column above</p> <p style="font-size: 2em; border: 1px solid black; padding: 2px;">13</p>	

Comments

<p>H 2.0 Does the wetland have the opportunity to provide habitat for many species?</p> <p>H 2.1 Buffers (see p. 71) Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed." Relatively undisturbed also means no grazing, no landscaping, no daily human use, and no structures or paving within undisturbed part of buffer.</p> <ul style="list-style-type: none"> — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. Points = 5 <input checked="" type="checkbox"/> 330 ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. <i>BPA powerline corridor to north</i> 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 <p>If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> — 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 <p><i>Aerial photo showing buffers</i></p>	<p>Figure 4</p> <p>4</p>
<p>H 2.2 Wet Corridors (see p. 72)</p> <p>H 2.2.1 Is the wetland unit part of a relatively undisturbed and unbroken, > 30 ft wide, 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)</p> <p>YES = 4 points (go to H 2.3) NO = go to H 2.2.2</p> <p>H 2.2.2 Is the unit part of a relatively undisturbed and unbroken, > 30 ft wide, 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?</p> <p>YES = 2 points (go to H 2.3) NO go to H 2.2.3</p> <p>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)?</p> <p>YES = 1 point NO = 0 points</p>	<p>4</p> <p>8</p>

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 unit?

NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions.

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 than 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

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

4

Comments

27

<p>H 2.4 Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 76)</p> <ul style="list-style-type: none"> — The wetland unit 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 <input checked="" type="checkbox"/> 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 	<p>5</p>
<p>H 2. TOTAL Score - opportunity for providing habitat Add the scores in the column above</p>	
<p>H 3.0 Does the wetland unit have indicators that its ability to provide habitat is reduced?</p>	
<p>H 3.1 Indicator of reduced habitat functions (see p. 75) Do the areas of open water in the wetland unit 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)</p> <p style="text-align: center;">YES = - 5 points <input checked="" type="radio"/> NO = 0 points</p>	<p>Points will be subtracted</p>
<p>Total Score for Habitat Functions – add the points for H 1, H 2, and H 3 and record the result on p. 1</p>	

17

30

Comments

27

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland unit meets the attributes described below and circle the appropriate Category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All units should also be characterized based on their functions.

Wetland Type <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	Category
<p>SC 1.0 Vernal pools (see p. 79)</p> <p>Is the wetland unit less than 4000 ft², and does it meet at least two of the following criteria?</p> <ul style="list-style-type: none"> — 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 120 days during the "wet" season. <p>YES = Go to SC 1.1 NO - not a vernal pool</p> <p>SC 1.1 Is the vernal pool relatively undisturbed in February and March?</p> <p>YES = Go to SC 1.2 NO - not a vernal pool with special characteristics</p>	
<p>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.)?</p> <p>YES = Category II NO = Category III</p>	<p>Cat. II Cat. III</p>
<p>SC 2.0 Alkali wetlands (see p. 81)</p> <p>Does the wetland unit meets one of the following two criteria?</p> <ul style="list-style-type: none"> — 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. <p>OR does the wetland unit meets two of the following three sub-criteria?</p> <ul style="list-style-type: none"> — 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. <p>YES = Category I NO - not an alkali wetland</p>	<p>Cat. I</p>

Wetland name or number B

WETLAND RATING FORM - EASTERN WASHINGTON

Version 2 - Updated June 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland B Date of site visit: 6/12/7

Rated by Lara Thoreson, Flogan Trained by Ecology? Yes No Date of training Spring 2006

SEC: 1 TOWNSHIP: 19 RANGE: 14 Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 3 Estimated size 24 ac

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I II III IV

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

Score for "Water Quality" Functions

Score for Hydrologic Functions

Score for Habitat Functions

TOTAL score for functions

22
6
18
46

Category based on SPECIAL CHARACTERISTICS of wetland

I II III Does not Apply

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

III

Summary of basic information about the wetland unit

Wetland Type	Wetland Class	
Vernal Pool	Depressional	<input checked="" type="checkbox"/>
Alkali	Riverine	<input type="checkbox"/>
Natural Heritage Wetland	Lake-fringe	<input type="checkbox"/>
Bog	Slope	<input type="checkbox"/>
Forest		<input type="checkbox"/>
None of the above	Check if unit has multiple HGM classes present	<input type="checkbox"/>

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
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		X
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. 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

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

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

The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

At least 30% of the open water area is deeper than 3 m (10 ft)?

NO

- go to Step 2

YES - The wetland class is **Lake-fringe (lacustrine fringe)**

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

The wetland is on a slope (*slope can be very gradual*),

The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

The water leaves the wetland **without being impounded**?

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

27

Wetland name or number B

HGM Classes Within One Delineated Wetland Boundary	Class to Use for Rating
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.

27

D Depressional Wetlands		Points
WATER QUALITY FUNCTIONS - Indicators that the wetland functions to improve water quality		(Only 1 score per box)
D	D 1.0 Does the wetland unit have the potential to improve water quality? <i>(see p. 38)</i>	
D	D 1.1 Characteristics of surface water flows out of the wetland unit: Wetland has no surface water outlet - points = 5 Wetland has an intermittently flowing outlet points = 3 Wetland has a highly constricted permanently flowing outlet - ^{DITCH} CULVERT points = <u>3</u> Wetland has a permanently flowing surface outlet - points = 1	3
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic <i>(use NRCS definitions of soil types)</i> YES <u>NO</u> points = <u>3</u> NO points = 0	3
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation for > 2/3 of area points = <u>3</u> 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 <i>Map of Cowardin vegetation classes</i>	Figure 5
D	D 1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.</i> Area seasonally ponded is > 1/2 total area of wetland points = 3 Area seasonally ponded is 1/4 - 1/2 total area of wetland points = 1 Area seasonally ponded is < 1/4 total area of wetland points = <u>0</u> NOTE: See text for indicators of seasonal and permanent inundation/flooding. <i>Map of Hydroperiods</i>	Figure 0 * DITCHED
D	Total for D 1 <i>Add the points in the boxes above</i>	11
D	D 2. Does the wetland unit have the opportunity to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> * Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 ft of wetland * A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other _____ YES multiplier is <u>2</u> NO multiplier is 1	multiplier 2
D	TOTAL - Water Quality Functions Multiply the score from D1 by the multiplier in D2 <i>Record score on p. 1 of field form</i>	22

<i>These questions apply to wetlands of all HGM classes.</i>		Points (only score per box)								
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat										
H 1. Does the wetland unit have the potential to provide habitat for many species?		Figure 2								
<p>H 1.1 Categories of vegetation structure (see p.62) Check the vegetation classes (as defined by Cowardin) and heights of emergents present. Size threshold for each class or height category is 1/4 acre or more than 10% of the area if unit is < 2.5 acres.</p> <p> <input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants 0-12 in. (0 - 30 cm) high are the highest layer and have > 30% cover <input checked="" type="checkbox"/> Emergent plants >12 - 40 in. (>30 - 100cm) high are the highest layer with >30% cover <input type="checkbox"/> Emergent plants > 40 in. (> 100cm) high are the highest layer with >30% cover <input checked="" type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input type="checkbox"/> Forested (areas where trees have >30% cover) </p> <p>Add the number of vegetation types that qualify. If you have:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>4-6 types</td> <td>points = 3</td> </tr> <tr> <td>3 types</td> <td>points = 2</td> </tr> <tr> <td>2 types</td> <td><u>points = 1</u></td> </tr> <tr> <td>1 type</td> <td>points = 0</td> </tr> </table>		4-6 types	points = 3	3 types	points = 2	2 types	<u>points = 1</u>	1 type	points = 0	<p>Figure 2</p> <p style="text-align: center;">1</p>
4-6 types	points = 3									
3 types	points = 2									
2 types	<u>points = 1</u>									
1 type	points = 0									
Map of Cowardin vegetation classes and areas with different heights of emergents										
<p>H 1.2. Is one of the vegetation types "aquatic bed?" (see p. 64) YES = 1 point <u>NO</u> = 0 points</p>		<p style="text-align: center;">0</p>								
<p>H 1.3. Surface Water (see p.65)</p> <p>H 1.3.1 Does the unit have areas of "open" water (without herbaceous or shrub plants) over at least 1/4 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 <u>NO</u> = go to H 1.3.2</p> <p>H 1.3.2 Does the unit have an intermittent or permanent stream within its boundaries, or along one side, over at least 1/4 acre or 10% of its area, AND that has an unvegetated bottom (answer yes only if H 1.3.1 is NO)? YES = 3 points <u>NO</u> = 0 points</p> <p style="text-align: right; margin-right: 50px;"><i>DITCH not 10% of AREA</i></p> <p style="text-align: center;">Map showing areas of open water</p>		<p style="text-align: center;">Figure</p> <p style="text-align: center;">0</p>								
<p>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 Eurasian Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites, Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)</p> <p>If you counted: > 9 species <u>points = 2</u> 4-9 species <u>points = 1</u> # of species < 4 species points = 0 points</p> <p>List species below if you wish</p>		<p style="text-align: center;">2</p>								

3

27

<p>H 1.5. Interspersion of habitats (see p. 67) Decided from the diagrams below whether interspersion between categories of vegetation (described in H 1.1), or categories and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <p>NOTE: If you have four or more vegetation categories or three vegetation categories and open water the rating is always "high". Use maps from H1.1 and H1.3</p>	<p>Figure</p> <p>2</p>
<p>H 1.6. Special Habitat Features: (see p. 68) Check the habitat features that are present in the wetland unit. The number of checks is the number of points you put into the next column.</p> <p><input type="checkbox"/> Loose rocks larger than 4" or large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.</p> <p><input type="checkbox"/> Cattails or bulrushes are present within the unit.</p> <p><input type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland unit or within 30 m (100ft) of the edge.</p> <p><input type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded. The presence of "yellow flag" <i>Iris</i> is a good indicator of vegetation in areas permanently ponded.</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>45 degree slope) OR signs of recent beaver activity</p> <p><input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)</p> <p style="text-align: right;">Maximum score possible = 6</p>	<p>0</p>
<p>TOTAL Potential to provide habitat Add the scores in the column above</p>	<p>5</p>
<p>Comments</p>	

H 2.0 Does the wetland have the opportunity to provide habitat for many species?	Figure
<p>H 2.1 Buffers (see p. 71) Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed." Relatively undisturbed also means no grazing, no landscaping, no daily human use, and no structures or paving within undisturbed part of buffer.</p> <ul style="list-style-type: none"> — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference 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 <p>If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> 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 <p>Aerial photo showing buffers</p>	<p>2</p>
<p>H 2.2 Wet Corridors (see p. 72)</p> <p>H 2.2.1 Is the wetland unit part of a relatively undisturbed and unbroken, > 30 ft wide, 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).</p> <p>YES = 4 points (go to H 2.3) NO = go to H 2.2.2</p> <p>H 2.2.2 Is the unit part of a relatively undisturbed and unbroken, > 30 ft wide, 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?</p> <p><input checked="" type="checkbox"/> YES = 2 points (go to H 2.3) NO go to H 2.2.3</p> <p>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)?</p> <p>YES = 1 point NO = 0 points</p>	<p>2</p> <p>4</p>

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 unit?
NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions.

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 than 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**

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

Comments

<p>H 2.4 Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 76)</p> <ul style="list-style-type: none"> — The wetland unit 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 	5	
<p>H 2. TOTAL Score - opportunity for providing habitat Add the scores in the column above</p>		13
<p>H 3.0 Does the wetland unit have indicators that its ability to provide habitat is reduced?</p>		
<p>H 3.1 Indicator of reduced habitat functions (see p. 75) Do the areas of open water in the wetland unit 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)</p> <p style="text-align: center;">YES = - 5 points NO = 0 points</p>	<p>Points will be subtracted</p> <p>0</p>	
<p>Total Score for Habitat Functions – add the points for H 1, H 2, and H 3 and record the result on p. 1</p>		18

Comments

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland unit meets the attributes described below and circle the appropriate Category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All units should also be characterized based on their functions.

Wetland Type	Category
<p><i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met</i></p>	
<p>SC 1.0 Vernal pools (see p. 79)</p> <p>Is the wetland unit less than 4000 ft², and does it meet at least two of the following criteria?</p> <ul style="list-style-type: none"> — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>NOTE: If you find perennial, "obligate", wetland plants the wetland is probably NOT a vernal pool</i> — 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 120 days during the "wet" season. <p>YES = Go to SC 1.1 NO = not a vernal pool</p> <p>SC 1.1 Is the vernal pool relatively undisturbed in February and March?</p> <p>YES = Go to SC 1.2 NO = not a vernal pool with special characteristics</p>	
<p>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.)?</p> <p>YES = Category II NO = Category III</p>	<p>Cat. II Cat. III</p>
<p>SC 2.0 Alkali wetlands (see p. 81)</p> <p>Does the wetland unit meets one of the following two criteria?</p> <ul style="list-style-type: none"> — 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. <p>OR does the wetland unit meets two of the following three sub-criteria?</p> <ul style="list-style-type: none"> — 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. <p>YES = Category I NO = not an alkali wetland</p>	<p>Cat. I</p>

27

WETLAND RATING FORM – EASTERN WASHINGTON

Version 2 - Updated June 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland C Date of site visit: 6/2/7

Rated by Lara Thoresen, J. Lopez Trained by Ecology? Yes No Date of training Spring 2006

SEC: 1 TOWNSHIP: 19 RANGE: 14 Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 3 Estimated size < 1000 SF

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I II III IV

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

Score for "Water Quality" Functions

Score for Hydrologic Functions

Score for Habitat Functions

TOTAL score for functions

12
8
8
28

Category based on SPECIAL CHARACTERISTICS of wetland

I II III Does not Apply

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

IV

Summary of basic information about the wetland unit

Wetland Type	Wetland Class	
Vernal Pool	Depressional	<input checked="" type="checkbox"/>
Alkali	Riverine	<input type="checkbox"/>
Natural Heritage Wetland	Lake-fringe	<input type="checkbox"/>
Bog	Slope	<input type="checkbox"/>
Forest		<input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/> Check if unit has multiple HGM classes present	<input type="checkbox"/>

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
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		X
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. 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

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

1. Does the entire wetland unit **meet both** of the following criteria?
 The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
 At least 30% of the open water area is deeper than 3 m (10 ft)?
NO go to Step 2 **YES** - The wetland class is **Lake-fringe (lacustrine fringe)**

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

NO OUTLET

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

Wetland name or number C

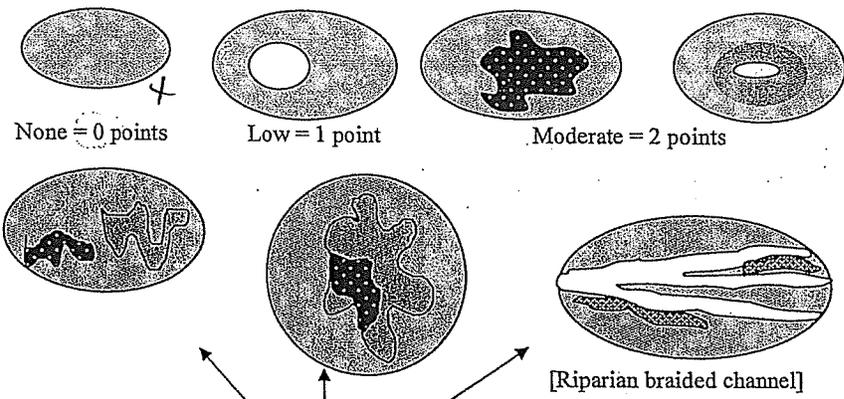
HGM Classes Within One Delineated Wetland Boundary	Class to Use for Rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine (riverine is within boundary of depression)	Depressional
Depressional + Lake-fringe	Depressional

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		(Only 1 score per box)
D	D 1.0 Does the wetland unit have the potential to improve water quality?	(see p. 38)
	D 1.1 Characteristics of surface water flows out of the wetland unit:	
D	Wetland has no surface water outlet - points = <u>5</u>	5
	Wetland has an intermittently flowing outlet points = 3	
	Wetland has a highly constricted permanently flowing outlet points = 3	
	Wetland has a permanently flowing surface outlet points = 1	
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions of soil types)	
	YES points = 3	0
	NO points = <u>0</u>	
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)	Figure
	Wetland has persistent, ungrazed, vegetation for > 2/3 of area points = 5	1
	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 = <u>1</u>	
	Wetland has persistent, ungrazed vegetation < 1/10 of area points = 0	
	<small>Map of Cowardin vegetation classes</small>	
D	D 1.4 Characteristics of seasonal ponding or inundation.	Figure
	<i>This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.</i>	0
	Area seasonally ponded is > 1/2 total area of wetland points = 3	
	Area seasonally ponded is 1/4 - 1/2 total area of wetland points = 1	
	Area seasonally ponded is < 1/4 total area of wetland points = <u>0</u>	
	NOTE: See text for indicators of seasonal and permanent inundation/flooding.	
	<small>Map of Hydroperiods</small>	
D	Total for D 1	Add the points in the boxes above
		6
D	D 2. Does the wetland unit have the opportunity to improve water quality?	
	Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.	
	<ul style="list-style-type: none"> <input type="checkbox"/> Grazing in the wetland or within 150 ft <input type="checkbox"/> Untreated stormwater discharges to wetland <input checked="" type="checkbox"/> Tilled fields or orchards within 150 ft of wetland - <i>Actively hayed</i> <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input type="checkbox"/> Residential, urban areas, golf courses are within 150 ft of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input type="checkbox"/> Other _____ 	
	<u>YES</u> multiplier is 2 NO multiplier is 1	multiplier
		2
D	TOTAL - Water Quality Functions	
	Multiply the score from D1 by the multiplier in D2	
	<i>Record score on p. 1 of field form</i>	12

D Depressional Wetlands		Points
HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion.		(only 1 score per box)
D	D 3.0 Does the wetland unit have the potential to reduce flooding and stream erosion?	(see p. 39)
D	<p>D 3.1 Characteristics of surface water flows out of the wetland unit:</p> <p>Wetland has no surface water outlet points = 8</p> <p>Wetland has an intermittently flowing outlet points = 4</p> <p>Wetland has a highly constricted permanently flowing outlet points = 4</p> <p>Wetland has a permanently flowing surface outlet points = 0</p>	8
D	<p>D 3.2 Depth of storage during wet periods:</p> <p>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)</p> <p>Marks of ponding are at least 3 ft above the surface points = 8</p> <p>The wetland is a "headwater" wetland" (see p. 39) points = 6</p> <p>Marks are 2 ft to < 3 ft from surface points = 6</p> <p>Marks are 1 ft to < 2 ft from surface points = 4</p> <p>Marks are 6 in to < 1 ft from surface points = 2</p> <p>No marks above 6 in. or wetland has only saturated soils points = 0</p>	0
D	Total for D 3 Add the points in the boxes above	8
D	<p>D 4.0 Does the wetland unit have the opportunity to reduce flooding and erosion?</p> <p>Answer NO if the major source of water is groundwater, irrigation return flow, or water levels in the wetland are controlled by a reservoir.</p> <p>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.</p> <ul style="list-style-type: none"> — 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 _____ <p>YES multiplier is 2 NO multiplier is 1</p>	(see p. 42)
		multiplier 1
D	TOTAL - Hydrologic Functions Multiply the score from D3 by the multiplier in D4	
	Record score on p. 1 of field form.	8

Comments

<p>H 1.5. Interspersion of habitats (see p. 67) Decided from the diagrams below whether interspersion between categories of vegetation (described in H 1.1), or categories and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p>  <p>None = 0 points Low = 1 point Moderate = 2 points</p> <p>High = 3 points</p> <p>[Riparian braided channel]</p> <p>NOTE: If you have four or more vegetation categories or three vegetation categories and open water the rating is always "high". Use maps from H1.1 and H1.3</p>	<p>Figure</p> <p>0</p>
<p>H 1.6. Special Habitat Features (see p. 68) Check the habitat features that are present in the wetland unit. The number of checks is the number of points you put into the next column.</p> <p><input type="checkbox"/> Loose rocks larger than 4" or large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.</p> <p><input type="checkbox"/> Cattails or bulrushes are present within the unit.</p> <p><input type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland unit or within 30 m (100ft) of the edge.</p> <p><input type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded. The presence of "yellow flag" <i>Iris</i> is a good indicator of vegetation in areas permanently ponded.</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>45 degree slope) OR signs of recent beaver activity</p> <p><input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)</p> <p style="text-align: right;">Maximum score possible = 6</p>	<p>0</p>
<p style="text-align: right;">TOTAL Potential to provide habitat Add the scores in the column above</p>	<p>7</p>
<p>Comments</p>	

H 2.0 Does the wetland have the opportunity to provide habitat for many species?	Figure
<p>H 2.1 Buffers (see p. 71) Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed." Relatively undisturbed also means no grazing, no landscaping, no daily human use, and no structures or paving within undisturbed part of buffer.</p> <ul style="list-style-type: none"> — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. 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 <p>If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> 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 <p><u>Aerial photo showing buffers</u></p>	<p>2</p>
<p>H 2.2 Wet Corridors (see p. 72)</p> <p>H 2.2.1 Is the wetland unit part of a relatively undisturbed and unbroken, > 30 ft wide, 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).</p> <p>YES = 4 points (go to H 2.3) NO = go to H 2.2.2</p> <p>H 2.2.2 Is the unit part of a relatively undisturbed and unbroken, > 30 ft wide, 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?</p> <p>YES = 2 points (go to H 2.3) NO go to H 2.2.3</p> <p>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)?</p> <p>YES = 1 point NO = 0 points</p>	<p>1</p>

3

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 unit?

NOTE: the connections **do not** have to be relatively undisturbed. These are DFW definitions.

Check with your local DFW biologist if there are any questions.

- 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 than 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**

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list.

Nearby wetlands are addressed in question H 2.4)

2

Comments

<p>H 2.4 Landscape (choose the <i>one</i> description of the landscape around the wetland that best fits) (see p. 76)</p> <ul style="list-style-type: none"> — The wetland unit 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 <u>A</u> 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
<p>H 2. TOTAL Score - opportunity for providing habitat Add the scores in the column above</p>	
<p>H 3.0 Does the wetland unit have indicators that its ability to provide habitat is reduced?</p>	
<p>H 3.1 Indicator of reduced habitat functions (see p. 75) Do the areas of open water in the wetland unit 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)</p> <p style="text-align: center;">YES = - 5 points NO = 0 points</p>	<p>Points will be subtracted</p>
<p>Total Score for Habitat Functions – add the points for H 1, H 2, and H 3 and record the result on p. 1</p>	

Comments

WETLAND RATING FORM - EASTERN WASHINGTON

Version 2 - Updated June 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland D Date of site visit: 6/12/7

Rated by Lara Thoreson Ilgner Trained by Ecology? Yes No Date of training Spring 2006

SEC: 1 TOWNSHIP: 19 RANGE: 14 Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 3 Estimated size 1.05

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I II III IV

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

Score for "Water Quality" Functions
 Score for Hydrologic Functions
 Score for Habitat Functions
TOTAL score for functions

6
2
11
19

Category based on SPECIAL CHARACTERISTICS of wetland

I II III Does not Apply

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

IV

Summary of basic information about the wetland unit

Wetland Type	Wetland Class
Vernal Pool	Depressional
Alkali	Riverine
Natural Heritage Wetland	Lake-fringe
Bog	Slope <input checked="" type="checkbox"/>
Forest	
None of the above	Check if unit has multiple HGM classes present

Wetland name or number 9

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
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> 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.		<i>A</i>

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

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

1. Does the entire wetland unit **meet both** of the following criteria?
 - The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
 - At least 30% of the open water area is deeper than 3 m (10 ft)?

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

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

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

Wetland name or number 0

HGM Classes Within One Delineated Wetland Boundary	Class to Use for Rating
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.

S Slope Wetlands		Points
WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality		(only 1 score per box)
S	S 1.0 Does the wetland have the <u>potential</u> to improve water quality?	(see p.56)
S	S 1.1 Characteristics of average slope of wetland: Slope is 1% or less (a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance) points = <u>3</u> Slope is between 1% and 2% points = 2 Slope is more than 2% but less than 5% points = 1 Slope is 5% or greater points = 0	3
S	S 1.2 The soil 2 inches below the surface is clay or organic (use NRCS definitions of soil types) YES = 3 points NO = <u>0</u> points	0
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches. X Dense, ungrazed, herbaceous vegetation > 90% of the wetland unit points = <u>6</u> Dense, ungrazed, herbaceous vegetation > 1/2 of unit points = 3 Dense, woody, vegetation > 1/2 of unit points = 2 Dense, ungrazed, herbaceous vegetation > 1/4 of unit points = 1 Does not meet any of the criteria above for herbaceous vegetation points = <u>0</u> Area <u>3</u> Aerial photo or map with vegetation polygons	Figure 0
S	Total for S 1 <u>periodically grazed</u> Add the points in the boxes above	3
S	S 2.0 Does the wetland have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. — Grazing in the wetland or within 150ft — Wetland is a groundwater seep within the Reclamation Area — Untreated stormwater flows through the wetland — Tilled fields or orchards within 150 feet of wetland A Residential, urban areas, or golf courses are within 150 ft upslope of wetland X Other <u>Bald Pasture</u> YES multiplier is <u>2</u> NO multiplier is 1	(see p.58) multiplier <u>2</u>
S	TOTAL - Water Quality Functions Multiply the score from S1 by the multiplier in S2 Record score on p. 1 of field form	6

S Slope Wetlands		Points
HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation		(only 1 score per box)
S	S 3.0 Does the wetland unit have the potential to reduce flooding and stream erosion?	(see p. 59)
S	<p>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. See question S 1.3 for definition of dense and uncut. Rigid means that the stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows.</p> <p>Dense, uncut, rigid vegetation covers > 90% of the area of the unit points = 6 Dense, uncut, rigid vegetation > 1/2 - 90% area of unit points = 3 Dense, uncut, rigid vegetation > 1/4 - 1/2 of unit points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0</p>	0
S	<p>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.</p> <p>YES points = 2 NO points = 0</p>	2
S	Total for S3 Add the points in the boxes above	2
S	<p>S 4.0 Does the wetland unit have the opportunity to reduce flooding and erosion? (see p. 61)</p> <p>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).</p> <p>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.</p> <p>— Wetland has surface runoff that can cause flooding problems downgradient — Other _____</p> <p>YES multiplier is 2 NO multiplier is 1</p>	multiplier 1
S	<p>TOTAL - Hydrologic Functions Multiply the score from S3 by the multiplier in S4</p> <p>Record score on p. 1 of field form</p>	2

Comments

Wetland is located upstream of large wetland that reduces majority of flood flows (Wetland A).

<p>H 1.5. Interspersion of habitats (see p. 67) Decided from the diagrams below whether interspersion between categories of vegetation (described in H 1.1), or categories and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <p>None = 0 points Low = 1 point Moderate = 2 points</p> <p>High = 3 points</p> <p>[Riparian braided channel]</p> <p>NOTE: If you have four or more vegetation categories or three vegetation categories and open water the rating is always "high". Use maps from H1.1 and H1.3</p>	<p>Figure</p> <p>0</p>
<p>H 1.6. Special Habitat Features: (see p. 68) Check the habitat features that are present in the wetland unit. The number of checks is the number of points you put into the next column.</p> <p><input type="checkbox"/> Loose rocks larger than 4" or large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.</p> <p><input type="checkbox"/> Cattails or bulrushes are present within the unit.</p> <p><input type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland unit or within 30 m (100ft) of the edge.</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>45 degree slope) OR signs of recent beaver activity</p> <p><input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)</p> <p style="text-align: right;">Maximum score possible = 6</p>	<p>0</p> <p>0</p>
<p>TOTAL Potential to provide habitat Add the scores in the column above</p>	<p>1</p>

Comments

H 2.0 Does the wetland have the opportunity to provide habitat for many species?	Figure
<p>H 2.1 Buffers (see p. 71) <i>Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed." Relatively undisturbed also means no grazing, no landscaping, no daily human use, and no structures or paving within undisturbed part of buffer.</i></p> <ul style="list-style-type: none"> — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference 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 <p>If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> 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 <p><i>Aerial photo showing buffers</i></p>	<p>2</p>
<p>H 2.2 Wet Corridors (see p. 72)</p> <p>H 2.2.1 Is the wetland unit part of a relatively undisturbed and unbroken, > 30 ft wide, vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? (<i>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</i>).</p> <p>YES = 4 points (go to H 2.3) NO = go to H 2.2.2</p> <p>H 2.2.2 Is the unit part of a relatively undisturbed and unbroken, > 30 ft wide, 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?</p> <p>YES = 2 points (go to H 2.3) NO go to H 2.2.3</p> <p>H 2.2.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake (<i>do not include man-made ditches</i>)?</p> <p>YES = 1 point NO = 0 points</p>	<p>3</p>

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 unit?

NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions.

- 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 than 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

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

2

Comments

<p>H 2.4 Landscape (choose the <i>one</i> description of the landscape around the wetland that best fits) (see p. 76)</p> <ul style="list-style-type: none"> — The wetland unit 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 <input checked="" type="checkbox"/> 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 	5
<p>H 2. TOTAL Score - opportunity for providing habitat Add the scores in the column above</p>	10
<p>H 3.0 Does the wetland unit have indicators that its ability to provide habitat is reduced?</p>	
<p>H 3.1 Indicator of reduced habitat functions (see p. 75) Do the areas of open water in the wetland unit 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)</p> <p style="text-align: center;">YES = - 5 points NO = 0 points</p>	<p>Points will be subtracted</p>
<p>Total Score for Habitat Functions – add the points for H 1, H 2, and H 3 and record the result on p. 1</p>	
<p style="text-align: right;">11</p>	

Comments

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadow Springs</u>	Date: <u>6/7/07</u>
Applicant/owner: <u>BGE of SAPPHIRE STRIES</u>	County: <u>Kittitas</u>
Investigator(s): <u>I. Logan, A. Merrill</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	S/T/R: <u>SL, TA, RVH</u>
Is the site significantly disturbed (atypical situation)? <input checked="" type="radio"/> yes <input type="radio"/> no	Community ID: <u>ORLANDO N of</u>
Is the area a potential Problem Area? <input checked="" type="radio"/> yes <input type="radio"/> no	Transect ID: <u>NOV of (015-034) WLA</u>
Explanation of atypical or problem area:	Plot ID: <u>DP-1</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Dactylis glomerata</u>	<u>H</u>	<u>40</u>	<u>FACU</u>				
<u>Phalaris arundinacea</u>	<u>H</u>	<u>50</u>	<u>FACW</u>				
<u>Chrysanthemum leucanth</u>	<u>H</u>	<u>20</u>	<u>NL</u>	<u>← noxious weed</u>			
<u>Ranunculus acris</u>	<u>H</u>	<u>10</u>	<u>FACW</u>				
<u>Carex sp. 3</u>	<u>H</u>	<u>5</u>	<u>FAC</u> <u>wetland</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 50%

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	_____	Physiological/reproductive adaptations	_____
Morphological adaptations	_____	Wetland plant database	<u>X</u>
Technical Literature	_____	Personal knowledge of regional plant communities	_____
		Other (explain)	_____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? yes no

Based on: _____ soil temp (record temp _____)
 time of year other (explain)

Dept. of inundation: _____ inches

Depth to free water in pit: _____ inches

Depth to saturated soil: _____ inches

Check all that apply & explain below:

Stream, Lake or gage data: _____
 Aerial photographs: _____ Other: _____

Water Marks: <input checked="" type="radio"/> yes <input type="radio"/> no	Sediment Deposits: <input checked="" type="radio"/> yes <input type="radio"/> no
on _____	
Drift Lines: <input checked="" type="radio"/> yes <input type="radio"/> no	Drainage Patterns: <input checked="" type="radio"/> yes <input type="radio"/> no
Oxidized Root (live roots) Channels <12 in. <input checked="" type="radio"/> yes <input type="radio"/> no	Local Soil Survey: <input checked="" type="radio"/> yes <input type="radio"/> no
FAC Neutral: <input checked="" type="radio"/> yes <input type="radio"/> no	Water-stained Leaves <input checked="" type="radio"/> yes <input type="radio"/> no
Other (explain): _____	

Wetland hydrology present? yes no

Rationale for decision/Remarks:

No saturation observed. Ditch to the south appears to capture hydrology (surface of ground water runoff)

SOILS

Map Unit Name Chickseil
(Series & Phase)

Drainage Class Somewhat poorly drained

Taxonomy (subgroup) Fine, mixed, Superactive
MOLC Xeric Argialbolls

Field observations confirm Yes No
mapped type?

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-13	A	10YR 2/1	-	-	loam	
13-20+	B	9Y 5/10	10YR 4/6	PROMINENT MANY COARSE	Silty clay	
					occasional rocks and sand deposits	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:
Soils have strong hydric indicators.

Wetland Determination (circle)

Hydrophytic vegetation present? yes no
 Hydric soils present? yes no Is the sampling point within a wetland? yes no
 Wetland hydrology present? yes no

Rationale/Remarks:

Wetland criteria not met.

NOTES:

DP-1 is located in powerline corridor, north of ditch and NW portion of Meadow Springs. Corridor/leasehold is primarily upland meadow with one major channel/ditch that conveys H₂O W to E. Meadow is actively/regularly hayed (Wayne Nelsen pers comm). Other small ditches run N-S conveying H₂O to main ditch.

Revised 4/97

DATA FORM 1 (Revised)
Routine Wetland Determination
 (WA State Wetland Delineation Manual or
 1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadow Springs</u>	Date: <u>6/7/07</u>
Applicant/owner: <u>B.C. Sapphire Skies</u>	County: <u>Lincoln</u>
Investigator(s): <u>A. Merrill, I. Logan</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	S/T/R: <u>S12, T1, R14</u>
Is the site significantly disturbed (atypical situation)? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Community ID: <u>WJL A</u>
Is the area a potential Problem Area? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Transect ID:
Explanation of atypical or problem area:	Plot ID: <u>DP-2</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Alnus vitifolia</u>	<u>T</u>	<u>100</u>	<u>EXW</u>				
<u>Rhynchospora arvensis</u>	<u>H</u>	<u>70</u>	<u>FAC</u>				
<u>Scirpus atrovirens</u>	<u>H</u>	<u>10</u>	<u>FAC-</u>				
<u>Sagittaria triangularis</u>	<u>H</u>	<u>20</u>	<u>VI</u>				
<u>Carex sp.</u>	<u>H</u>	<u>40</u>	<u>FAC or wetter</u>				
<u>Utricularia viridis</u>	<u>H</u>	<u>20</u>	<u>FACW</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 100

Check all indicators that apply & explain below:

- | | | | |
|---|-------|--|----------|
| Visual observation of plant species growing in areas of prolonged inundation/saturation | _____ | Physiological/reproductive adaptations | _____ |
| Morphological adaptations | _____ | Wetland plant database | <u>X</u> |
| Technical Literature | _____ | Personal knowledge of regional plant communities | _____ |
| | | Other (explain) | _____ |

Hydrophytic vegetation present? yes no
 Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Water Marks: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	Sediment Deposits: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
Based on: <u>DATE</u> soil temp (record temp _____) other (explain)	Drift Lines: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	Drainage Patterns: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	Local Soil Survey: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
Depth to free water in pit: <u>9</u> inches	FAC Neutral: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Water-stained Leaves yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
Depth to saturated soil: <u>0</u> inches	Other (explain):	
Check all that apply & explain below: Stream, Lake or gage data: _____ Aerial photographs: <input checked="" type="checkbox"/> Other: _____		

Wetland hydrology present? yes no
 Rationale for decision/Remarks:
Sols. are saturated to surface throughout large area

SOILS

Map Unit Name Quicksell
(Series & Phase)

Drainage Class Somewhat poorly drained

Field observations confirm mapped type? Yes No

Taxonomy (subgroup) Five mixed, suberactive, Mosaic Xeric Argabolls

Profile Description						
Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-10	A1	10YR 7/1	-	-	loam - high organics	
10-18+	A2	10YR 7/1	-	-	silty loam	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:

Soils are black 10YR 7/1, 0-18+

Wetland Determination (circle)

- Hydrophytic vegetation present? yes no
- Hydric soils present? yes no
- Wetland hydrology present? yes no
- Is the sampling point within a wetland? yes no

Rationale/Remarks:

All 3 criteria are met

NOTES:

DP-2 is located in WLA, near NW corner, within PFO community. WC A includes an E-W ditch that extends near the southern boundary or powerline easement. Wetland contains much s loam soils that are saturated to surface extensively throughout

Revised 4/9

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadow Springs</u>	Date: <u>6/7/07</u>
Applicant/owner: <u>BBB / SAPPHIRE SERIES</u>	County: <u>Kittitas</u>
Investigator(s): <u>J. Logan, A. Merrill</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	S/T/R: <u>812, T19, R14</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	Community ID: <u>A WL A</u>
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	Transect ID:
Explanation of atypical or problem area:	Plot ID: <u>DP-3</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<i>Scirpus microcarpus</i>	H	50	OBL				
<i>Bolbosium ciliatum</i>	H	10	FACW				
<i>Festuca occidentalis</i>	H	70	NL				
<i>Equisetum arvense</i>	H	20	FAC				
<i>Potamogeton frigidus</i>	H	20	FACW				
<i>Alnus sitchensis</i>	S	10	FACW				

HYDROPHYTIC VEGETATION INDICATORS:

Not Listed - NL = however similar species are FAC+

% of dominants: OBL, FACW, & FAC 70

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation _____
 Morphological adaptations _____
 Technical Literature _____

Physiological/reproductive adaptations _____
 Wetland plant database X
 Personal knowledge of regional plant communities _____
 Other (explain) _____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? yes no

Based on: _____ soil temp (record temp _____)
 time of year other (explain)

Dept. of inundation: _____ inches

Depth to free water in pit: 2 inches

Depth to saturated soil: surface inches

Check all that apply & explain below:

Stream, Lake or gage data: _____
 Aerial photographs: _____ Other: _____

Water Marks: yes no

Drift Lines: yes no

Oxidized Root (live roots) Channels <12 in. yes

FAC Neutral: yes no

Sediment Deposits: yes no

Drainage Patterns: yes no

Local Soil Survey: yes no

Water-stained Leaves yes no

Wetland hydrology present? yes no

Rationale for decision/Remarks:

Soil saturated to surface; free water observed. Flooding at 10' to the south.

SOILS

Map Unit Name Quicksell
(Series & Phase)

Drainage Class Somewhat poorly drained
Field observations confirm Yes No

Taxonomy (subgroup) See description of DPZ

mapped type?

Profile Description						
Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-10	A	10YR 2/1	—	—	loam	
10-16	B	10YR 2/2	7.5YR 4/4	pron, coarse, many	loam	

Hydric Soil Indicators: (check all that apply)

<input type="checkbox"/> Histosol	<input checked="" type="checkbox"/> Matrix chroma ≤ 2 with mottles
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Mg or Fe Concretions
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National/Local Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma (=1) matrix	<input type="checkbox"/> Other (explain in remarks)

Hydric soils present? yes no
Rationale for decision/Remarks:
chroma 2 w/ no mottles observed.

Wetland Determination (circle)

Hydrophytic vegetation present?	<u>yes</u> no	Is the sampling point within a wetland?	<u>yes</u> no
Hydric soils present?	<u>yes</u> no		
Wetland hydrology present?	<u>yes</u> no		

Rationale/Remarks:
All 3 wetland criteria met.

NOTES:
DP-3 is located south of electric lines, north of irrigation ditches in PEM area of Wetland A.

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project/Site: <u>MEADOW SPRINGS</u>	Date: <u>6/8/07</u>
Applicant/owner: <u>BCE/Sapphire Steels</u>	County: <u>KITITAS</u>
Investigator(s): <u>LT, AM, JL</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	S/TR: <u>S1, T1A, P14</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	Community ID: <u>25 near WL</u>
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	Transect ID: <u>A</u>
Explanation of atypical or problem area:	Plot ID: <u>DP-4</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<i>Festuca occidentalis</i>	H	70	NL	<i>Ranunculus acris</i>	H	5	FAC
<i>Phleum pratensis</i>	H	10	FAC	<i>Juncus ensoltus</i>	H	10	FACW
<i>Ranunculus uncinatus</i>	H	10	FAC				
<i>Phalaris arundinacea</i>	H	10	FACW				
<i>Trisetum repens</i>	H	30	FAC				
<i>Poa sp.</i>	H	50	FAC				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC > 66 unsure of *Festuca Indicata* NL

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	_____	Physiological/reproductive adaptations	_____
Morphological adaptations	_____	Wetland plant database	<u>X</u>
Technical Literature	_____	Personal knowledge of regional plant communities	_____
		Other (explain)	_____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: yes <input type="radio"/> no <input checked="" type="radio"/>	Sediment Deposits: yes <input type="radio"/> no <input checked="" type="radio"/>
Based on: _____ soil temp (record temp _____) <u>DATE</u> other (explain)	Drift Lines: yes <input type="radio"/> no <input checked="" type="radio"/>	Drainage Patterns: yes <input type="radio"/> no <input checked="" type="radio"/>
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. yes <input type="radio"/> no <input checked="" type="radio"/>	Local Soil Survey: yes <input type="radio"/> no <input checked="" type="radio"/>
Depth to free water in pit: <u>218</u> inches	FAC Neutral: yes <input type="radio"/> no <input checked="" type="radio"/>	Water-stained Leaves yes <input type="radio"/> no <input checked="" type="radio"/>
Depth to saturated soil: <u>218</u> inches	Other (explain):	
Check all that apply & explain below:		
Stream, Lake or gage data: _____		
Aerial photographs: <input checked="" type="radio"/> A Other: _____		

Wetland hydrology present? yes no

Rationale for decision/Remarks:

No indicators present.

SOILS

Map Unit Name Quartzell
(Series & Phase)

Drainage Class Somewhat poorly drained

Taxonomy (subgroup) Fine mixed, superactive
mesic Xeric Argialbolls

Field observations confirm Yes No
mapped type?

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-18+	A	10YR 7/1	-	-	loam	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:

Soils have low chroma, but no redox features.

Wetland Determination (circle)

Hydrophytic vegetation present? yes no
 Hydric soils present? yes no Is the sampling point yes no
 within a wetland?
 Wetland hydrology present? yes no

Rationale/Remarks:

Not all 3 criteria are met.

NOTES:

DP-4 is located north of PEM portion of Wetland A. Area has deeper loam soils that permit infiltration of surface runoff.

27

DATA FORM 1 (Revised)
Routine Wetland Determination
 (WA State Wetland Delineation Manual or
 1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadow Springs</u>	Date: <u>6/8/07</u>
Applicant/owner: <u>BCE / Sapphire Skies</u>	County: <u>WA</u>
Investigator(s): <u>J. Dugan, A. Merrill</u>	State: <u>Washing</u>
	S/T/R: <u>S12, T9, R4</u>
Do Normal Circumstances exist on the site? Is the site significantly disturbed (atypical situation)? Is the area a potential Problem Area?	<input checked="" type="radio"/> yes <input type="radio"/> no <input type="radio"/> yes <input checked="" type="radio"/> no <input type="radio"/> yes <input checked="" type="radio"/> no
Explanation of atypical or problem area:	Community ID: <u>↓</u> Transect ID: Plot ID: <u>DP-5</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Scirpus microcarpus</u>	<u>H</u>	<u>25</u>	<u>OBL</u>				
<u>Phleum pratense</u>	<u>H</u>	<u>10</u>	<u>FAC-</u>				
<u>Carex rostrata (?)</u>	<u>H</u>	<u>25</u>	<u>OBL</u>				
<u>Festuca occidentalis</u>	<u>H</u>	<u>5</u>	<u>NL</u>				
<u>Alnus citchensis</u>	<u>S</u>	<u>15</u>	<u>FACW</u>				
<u>Phalaris arundinacea</u>	<u>H</u>	<u>60</u>	<u>FACW</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 100

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	<u>X</u>	Physiological/reproductive adaptations	<u>X</u>
Morphological adaptations	_____	Wetland plant database	_____
Technical Literature	_____	Personal knowledge of regional plant communities	_____
		Other (explain)	_____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:
All dominant plants are FAC or better

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: yes <input checked="" type="radio"/> no <input type="radio"/>	Sediment Deposits: yes <input checked="" type="radio"/> no <input type="radio"/>
Based on: <u>soil temp</u> (record temp _____) <u>time of year</u> other (explain)	Drift Lines: yes <input checked="" type="radio"/> no <input type="radio"/>	Drainage Patterns: <input checked="" type="radio"/> yes <input type="radio"/> no
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. yes <input checked="" type="radio"/> no <input type="radio"/>	Local Soil Survey: yes <input checked="" type="radio"/> no <input type="radio"/>
Depth to free water in pit: <u>10</u> inches	FAC Neutral: yes <input type="radio"/> no <input type="radio"/>	Water-stained Leaves yes <input checked="" type="radio"/> no <input type="radio"/>
Depth to saturated soil: <u>5</u> inches	Other (explain):	
Check all that apply & explain below: Stream, Lake or gage data: _____ Aerial photographs: _____ Other: _____		

Wetland hydrology present? yes no

Rationale for decision/Remarks:
Soil saturated at 5"; presence of OBL plants.

SOILS

Map Unit Name Quicksell
(Series & Phase)

Drainage Class Saturated pale, drain

Taxonomy (subgroup) Fine, mixed, superactive
mesic Xeric Argibolls

Field observations confirm Yes No
mapped type?

Profile Description						
Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-14	A	10YR 3/1	7.5YR 4/4	Common, ind. med	Sandy loam	
14-6+	B	10YR 3/4	10YR 5/6	None, common, dist.	Gravelly sandy loam	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:
Low chroma matrix observed

Wetland Determination (circle)

Hydrophytic vegetation present? yes no
 Hydric soils present? yes no
 Wetland hydrology present? yes no
 Is the sampling point within a wetland? yes no

Rationale/Remarks:

All 3 wetland criteria met.

NOTES:

DR-A is located in REM portion of wetland A, between drain & powerlines, 5' of ditch. Area shows evidence of past agricultural disturbance, and disturbance from powerline construction.

DATA FORM 1 (Revised)
Routine Wetland Determination
 (WA State Wetland Delineation Manual or
 1987 Corps Wetland Delineation Manual)

Project/Site: Meadow Springs Date: 6/8/07
 Applicant/owner: BCE SUPPLY STORES County: Clatsop
 Investigator(s): J. Logan & A. Merrill State: OR
 S/T/R: SIZ, T11, R11
 Do Normal Circumstances exist on the site? yes no
 Is the site significantly disturbed (atypical situation)? yes no
 Is the area a potential Problem Area? yes no
 Explanation of atypical or problem area:
 Community ID: 2
 Transect ID:
 Plot ID: DP-6

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<i>Festuca occidentalis</i>	H	70	NL				
<i>Juncus effusus</i>	H	10	FACW				
<i>Chrysanthemum leucanth</i>	H	20	NL				
<i>Tanacetum vulgare</i>	H	15	N1				
<u>UNK 2</u>	H	15					

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants: BL, FACW, & FAC 100
 Check all indicators that apply & explain below:
 Visual observation of plant species growing in areas of prolonged inundation/saturation
 Morphological adaptations
 Technical Literature
 Physiological/reproductive adaptations
 Wetland plant database
 Personal knowledge of regional plant communities
 Other (explain)

Hydrophytic vegetation present? yes no
 Rationale for decision/Remarks: However - indicator is weak since no other W. species are dominant
Most all other Festucas are FAC & Juncus effusus only other listed species therefore B1

HYDROLOGY

Is it the growing season? yes no
 Based on: fine of year soil temp (record temp _____) other (explain)
 Dept. of inundation: _____ inches
 Depth to free water in pit: _____ inches
 Depth to saturated soil: _____ inches
 Check all that apply & explain below:
 Stream, Lake or gage data: _____
 Aerial photographs: _____ Other: _____
 Water Marks: yes no
 Sediment Deposits: yes no
 Drift Lines: yes no
 Drainage Patterns: yes no
 Oxidized Root (live roots) Channels <12 in. yes no
 Local Soil Survey: yes no
 FAC Neutral: yes no
 Water-stained Leaves yes no
 Other (explain):

Wetland hydrology present? yes no
 Rationale for decision/Remarks: No evidence of wetland hydrology

SOILS

Map Unit Name Quickell
(Series & Phase)

Drainage Class Somewhat poorly drained

(Taxonomy (subgroup) Fine mixed, superactive, moist
Xeric Argialbolls)

Field observations confirm Yes No
mapped type?

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-7	A1	10YR 3/3	—	—	Sandy loam	
7-16+	A2	10YR 3/3	7.5YR 3/4	faint, common	Sandy loam	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:
No hydric indicators observed

Wetland Determination (circle)

Hydrophytic vegetation present? yes no
 Hydric soils present? yes no
 Wetland hydrology present? yes no
 Is the sampling point within a wetland? yes no

Rationale/Remarks:

NOTES:

DP-6 is located north of upland of
DP-5, in upland meadow

DATA FORM 1 (revised)
Routine Wetland Determination
 (WA State Wetland Delineation Manual or
 1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadow Spring</u>	Date: <u>6/11/7</u>
Applicant/owner: <u>Sapphire Sites / BLE</u>	County: <u>Kittitas</u>
Investigator(s): <u>LT, AM, JL</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	S/T/R: <u>S / T19 / R14</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	Community ID: <u>WLB</u>
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	Transect ID:
Explanation of atypical or problem area:	Plot ID: <u>DP7</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Phalaris amabilis</u>	<u>H</u>	<u>100</u>	<u>FAC(W)</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 100

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation _____	Physiological/reproductive adaptations _____
Morphological adaptations _____	Wetland plant database <u>X</u>
Technical Literature _____	Personal knowledge of regional plant communities <u>X</u>
	Other (explain) _____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: yes <input type="radio"/> no <input checked="" type="radio"/>	Sediment Deposits: yes <input type="radio"/> no <input checked="" type="radio"/>
Based on: <u>Date</u> soil temp (record temp _____) other (explain)	Drift Lines: <input checked="" type="radio"/> yes <input type="radio"/> no	Drainage Patterns: <input checked="" type="radio"/> yes <input type="radio"/> no
Dept. of inundation: <u>NO</u> inches	Oxidized Root (live roots) Channels <12 in. yes <input type="radio"/> no <input checked="" type="radio"/>	Local Soil Survey: <input checked="" type="radio"/> yes <input type="radio"/> no
Depth to free water in pit: <u>NO</u> inches	FAC Neutral: <input checked="" type="radio"/> yes <input type="radio"/> no	Water-stained Leaves yes <input type="radio"/> no <input checked="" type="radio"/>
Depth to saturated soil: <u>8"</u> inches	Check all that apply & explain below:	
Stream, Lake or gage data: _____	HydroSai <u>X</u> Other (explain): _____	
Aerial photographs: <u>X</u>	Other: <u>NO</u> <u>~6' from ditch with water in it</u>	
Wetland hydrology present? <input checked="" type="radio"/> yes <input type="radio"/> no	Rationale for decision/Remarks:	

Wetland Ditch 3 15" deep 5' wide

SOILS

Map Unit Name Haplosarids 0-2% slopes
(Series & Phase)

Drainage Class Very poorly drained

Taxonomy (subgroup) —

Field observations confirm Yes No mapped type?

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-16	A	10YR2/1	—	—	loam	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:

Dark matrix

Wetland Determination (circle)

- Hydrophytic vegetation present? yes no
- Hydric soils present? yes no
- Wetland hydrology present? yes no
- Is the sampling point within a wetland? yes no

Rationale/Remarks:

NOTES:

DP 7 NW corner of meadow springs
S. of Puro road near existing house

Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadows Springs</u>	Date: <u>6/11/7</u>
Applicant/owner: <u>BLE / Sapphire Slates</u>	County: <u>Kings</u> State: <u>WA</u> S/T/R: <u>S1, T19, R14</u>
Investigator(s): <u>IL, LT</u>	Community ID: <u>upl of WLB</u> Transect ID: <u>Near DPT 735334 (Panel #</u> Plot ID: <u>DP9</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	
Explanation of atypical or problem area:	

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Agrostis sp</u>	<u>H</u>	<u>50</u>	<u>FAC</u>				
<u>Pumex acetosella</u> <u>Sheep sorrel</u>	<u>H</u>	<u>5</u>	<u>FACW</u>				
<u>Poa bulbosa</u>	<u>H</u>	<u>50</u>	<u>FAC</u>				
<u>Equisetum arvense</u>	<u>H</u>	<u>10</u>	<u>FAC</u>				
<u>White flowers</u> <u>shiny leaves</u>	<u>H</u>	<u>25</u>	<u>?</u>				
<u>Lupinus latifolius</u>	<u>H</u>	<u>5</u>	<u>NI</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC ≥ 66

Check all indicators that apply & explain below:

- | | | | |
|---|--------------------------|--|-------------------------------------|
| Visual observation of plant species growing in areas of prolonged inundation/saturation | <input type="checkbox"/> | Physiological/reproductive adaptations | <input type="checkbox"/> |
| Morphological adaptations | <input type="checkbox"/> | Wetland plant database | <input checked="" type="checkbox"/> |
| Technical Literature | <input type="checkbox"/> | Personal knowledge of regional plant communities | <input type="checkbox"/> |
| | | Other (explain) | <input type="checkbox"/> |

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:
 Even though one unidentified species that was dominant at least 2 of the 3 dominant were FAC therefore vegetation meets indicators of hydrophytic vegetation.

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: yes <input type="radio"/> no <input checked="" type="radio"/>	Sediment Deposits: yes <input type="radio"/> no <input checked="" type="radio"/>
Based on: <u>Date</u> soil temp (record temp _____) other (explain)	Drift Lines: yes <input type="radio"/> no <input checked="" type="radio"/>	Drainage Patterns: yes <input type="radio"/> no <input checked="" type="radio"/>
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. yes <input type="radio"/> no <input checked="" type="radio"/>	Local Soil Survey: <input checked="" type="radio"/> yes <input type="radio"/> no
Depth to free water in pit: <u>NO</u> inches	FAC Neutral: yes <input type="radio"/> no <input checked="" type="radio"/>	Water-stained Leaves yes <input type="radio"/> no <input checked="" type="radio"/>
Depth to saturated soil: <u>NO</u> inches	Other (explain): <u>Dry</u>	
Check all that apply & explain below: Stream, Lake or gage data: _____ Aerial photographs: _____ Other: _____		
Wetland hydrology present? <input checked="" type="radio"/> yes <input type="radio"/> no		
Rationale for decision/Remarks:		

SOILS

Map Unit Name Haplosaprists 0-2% slopes
(Series & Phase)

Drainage Class Very poorly drained

Field observations confirm mapped type? Yes No

(Taxonomy (subgroup))

Profile Description						
Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-10	A	2.5Y 3/2	—		Sand loam w/ cobble & gravel	

Hydric Soil Indicators: (check all that apply)

<input type="checkbox"/> Histosol	<input type="checkbox"/> Matrix chroma ≤ 2 with mottles
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Mg or Fe Concretions
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils
<input type="checkbox"/> Aquic Moisture Régime	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Reducing Conditions	<input checked="" type="checkbox"/> Listed on National/Local Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chroma (=1) matrix	<input type="checkbox"/> Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:
 ~ Fill soil or historically disturbed; paving road B ditch construction
 Dry - next to wet but up slope

Wetland Determination (circle)

Hydrophytic vegetation present?	yes <input checked="" type="checkbox"/> no <input type="checkbox"/>	Is the sampling point within a wetland?	yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
Hydric soils present?	yes <input type="checkbox"/> no <input checked="" type="checkbox"/>		
Wetland hydrology present?	yes <input type="checkbox"/> no <input checked="" type="checkbox"/>		

Rationale/Remarks:
 wetland data plot for Wetland B ~ 35' E of DP

NOTES:

DATA FORM 1 (REVISED)
 Routine Wetland Determination
 (WA State Wetland Delineation Manual or
 1987 Corps Wetland Delineation Manual)

Project/Site: Meadow Springs Date: 6/11/7
 Applicant/owner: BLE / Sapre Skiing County: King
 Investigator(s): IL, LT State: WA
 S/TR: SI, T19, R14

Do Normal Circumstances exist on the site? yes no
 Is the site significantly disturbed (atypical situation)? yes no
 Is the area a potential Problem Area? yes no
 Explanation of atypical or problem area:
 Community ID: Wetland B
 Transect ID: near Ditch in BULB
 Plot ID: DP9

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Poa palustris</u>	<u>H</u>	<u>30</u>	<u>FAC</u>	<u>Carex sp</u>	<u>H</u>	<u>5</u>	<u>FACW</u>
<u>Phalaris amabilis</u>	<u>H</u>	<u>70</u>	<u>FACW</u>				
<u>Panicum acetosella</u>	<u>H</u>	<u>10</u>	<u>FACW</u>				
<u>Sheep sorrel</u>	<u>H</u>						
<u>Gaum murphyana</u>	<u>H</u>	<u>5</u>	<u>FACW</u>				
<u>Ranunculus acris</u>	<u>H</u>	<u>5</u>	<u>FACW</u>				
<u>Juncus sp</u>	<u>H</u>	<u>5</u>	<u>FACW</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 100

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	<input type="checkbox"/>	Physiological/reproductive adaptations	<input type="checkbox"/>
Morphological adaptations	<input type="checkbox"/>	Wetland plant database	<input checked="" type="checkbox"/>
Technical Literature	<input type="checkbox"/>	Personal knowledge of regional plant communities	<input type="checkbox"/>
		Other (explain)	<input type="checkbox"/>

Hydrophytic vegetation present? yes no
 Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? yes no

Based on: Date soil temp (record temp _____) other (explain)

Water Marks: yes <input type="radio"/> no <input checked="" type="radio"/>	Sediment Deposits: yes <input type="radio"/> no <input checked="" type="radio"/>
Drift Lines: yes <input type="radio"/> no <input checked="" type="radio"/>	Drainage Patterns: yes <input type="radio"/> no <input checked="" type="radio"/>
Oxidized Root (live roots) Channels <12 in. yes <input type="radio"/> no <input checked="" type="radio"/>	Local Soil Survey: yes <input type="radio"/> no <input checked="" type="radio"/>
FAC Neutral: <input checked="" type="radio"/> yes <input type="radio"/> no	Water-stained Leaves yes <input type="radio"/> no <input checked="" type="radio"/>

Check all that apply & explain below:
 Stream, Lake or gage data:
 Aerial photographs: Other:

Wetland hydrology present? yes no
 Rationale for decision/Remarks:
Saturated with 12" of soil surface, water in pit

SOILS

Map Unit Name Hu H₂Sapn3ts
(Series & Phase)

Drainage Class Very poorly drained

Taxonomy (subgroup) (none)

Field observations confirm mapped type? Yes No

Profile Description						
Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-10	A	10YR 2/1			loam	

Hydric Soil Indicators: (check all that apply)

<input type="checkbox"/> Histosol	<input type="checkbox"/> Matrix chroma ≤ 2 with mottles
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Mg or Fe Concretions
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National/Local Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma (≤ 1) matrix	<input type="checkbox"/> Other (explain in remarks)

Hydric soils present? yes no
 Rationale for decision/Remarks: Homorganic matter in soil profile

Wetland Determination (circle)

Hydrophytic vegetation present?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Is the sampling point within a wetland?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Hydric soils present?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no		
Wetland hydrology present?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no		

Rationale/Remarks:
All 3 wetland criteria met.

NOTES:

DATA FORM 1 (Revised)
Routine Wetland Determination
 (WA State Wetland Delineation Manual or
 1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadow Springs</u>	Date: <u>6/4/07</u>
Applicant/owner: <u>SAPPHIRE SLICES / BLS</u>	County: <u>KEMMERAS</u>
Investigator(s): <u>LT, EL, AM</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	S/TR: <u>SI, T19, P14</u>
Is the site significantly disturbed (atypical situation)? <input checked="" type="radio"/> yes <input type="radio"/> no	Community ID: <u>W6 B Wetland B</u>
Is the area a potential Problem Area? <input checked="" type="radio"/> yes <input type="radio"/> no	Transect ID: <u>near 11</u>
Explanation of atypical or problem area:	Plot ID: <u>DP10</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Phleum pratense</u>	<u>H</u>	<u>20</u>	<u>FACW</u>	<u>Carex sp</u>	<u>H</u>	<u>30</u>	<u>FAC or wetter</u>
<u>Ranunculus acris</u>	<u>H</u>	<u>30</u>	<u>FACW</u>				
<u>Poa polystris</u>	<u>H</u>	<u>40</u>	<u>FAC</u>				
<u>Taraxacum officinale</u>	<u>H</u>	<u>20</u>	<u>FACW</u>				
<u>Scirpus microcarpus</u>	<u>H</u>	<u>20</u>	<u>FACW</u>				
<u>Epilobium ciliatum</u>	<u>H</u>	<u>15</u>	<u>FACW</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC > 80%

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	Physiological/reproductive adaptations	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Morphological adaptations	Wetland plant database	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Technical Literature	Personal knowledge of regional plant communities	<input type="checkbox"/>	<input type="checkbox"/>
	Other (explain)	<input type="checkbox"/>	<input type="checkbox"/>

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:
More than 50% are OBL, FACW, or FAC

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: yes <input type="radio"/> no <input checked="" type="radio"/>	Sediment Deposits: yes <input type="radio"/> no <input checked="" type="radio"/>
Based on: <u>DATE</u> soil temp (record temp _____) other (explain)	Drift Lines: yes <input type="radio"/> no <input checked="" type="radio"/>	Drainage Patterns: yes <input type="radio"/> no <input checked="" type="radio"/>
Dept. of inundation: _____ inches <u>water seeping in @ 7"</u>	Oxidized Root (live roots) Channels <12 in. <input checked="" type="radio"/> yes <input type="radio"/> no	Local Soil Survey: <input checked="" type="radio"/> yes <input type="radio"/> no
Depth to free water in pit: <u>12</u> inches	FAC Neutral: <input checked="" type="radio"/> yes <input type="radio"/> no	Water-stained Leaves yes <input type="radio"/> no <input checked="" type="radio"/>
Depth to saturated soil: <u>4</u> inches	Check all that apply & explain below:	
Stream, Lake or gage data: _____	Other (explain):	
Aerial photographs: _____	Other: _____	

Wetland hydrology present? yes no

Rationale for decision/Remarks:
Soils saturated within 4" of surface in early June.

SOILS

Map Unit Name Haplosaprists
(Series & Phase)

Drainage Class Very poorly drained

Field observations confirm mapped type? Yes No

Taxonomy (subgroup) _____

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-12	A1	2.5Y 7/1	5YR 4/6	few fine prominent	silty clay loam	
12-17	A2	2.5Y 7/1	10YR 3/3	common medium distinct or faint		
12-17	A2	2.5Y 2.5/1	10YR 4/6	common med to coarse prominent	clay loam	
			2.5Y 7/1 4/3	"		

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:

Soils have chroma & redox features.

Wetland Determination (circle)

- Hydrophytic vegetation present? yes no
- Hydric soils present? yes no
- Wetland hydrology present? yes no
- Is the sampling point within a wetland? yes no

Rationale/Remarks:

All 3 criteria are met.

NOTES: DP-10 located in southern portion of Wetland B, adjacent to upland island dominated by *Phleum pratense*.

DATA FORM 1 (Revised)
Routine Wetland Determination
 (WA State Wetland Delineation Manual or
 1987 Corps Wetland Delineation Manual)

Project/Site: <u>MEADOW SPRINGS</u>	Date: <u>6/11/07</u>
Applicant/owner: <u>BCE/SAPPHIRE SUES</u>	County: <u>KENTON</u> State: <u>WA</u>
Investigator(s): <u>LT, AM, DL</u>	S/T/R: <u>S1, T19, R14</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	Community ID: <u>25 UPLAND</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	Transect ID: <u>near 10</u>
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	Plot ID: <u>DR11</u>
Explanation of atypical or problem area:	

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Phleum pratense</u>	<u>H</u>	<u>100</u>	<u>FAC -</u>				
<u>Taraxacum officinale</u>	<u>H</u>	<u>40</u>	<u>FACU</u>				
<u>Rumex acetosella</u>	<u>H</u>	<u>10</u>	<u>FACU+</u>				
<u>Tribstium repens</u>	<u>H</u>	<u>20</u>	<u>FAC*</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 25

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	_____	Physiological/reproductive adaptations	_____
Morphological adaptations	_____	Wetland plant database	_____ <input checked="" type="checkbox"/>
Technical Literature	_____	Personal knowledge of regional plant communities	_____
		Other (explain)	_____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:
Not more than 50% OBL, FACW, FAC

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: <input type="radio"/> yes <input checked="" type="radio"/> no	Sediment Deposits: <input type="radio"/> yes <input checked="" type="radio"/> no
Based on: _____ soil temp (record temp _____) <u>DATE</u> other (explain)	Drift Lines: <input type="radio"/> yes <input checked="" type="radio"/> no	Drainage Patterns: <input type="radio"/> yes <input checked="" type="radio"/> no
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels < 12 in: <input checked="" type="radio"/> yes <input type="radio"/> no	Local Soil Survey: <input checked="" type="radio"/> yes <input type="radio"/> no
Depth to free water in pit: <u>218</u> inches	FAC Neutral: <input type="radio"/> yes <input checked="" type="radio"/> no	Water-stained Leaves <input type="radio"/> yes <input checked="" type="radio"/> no
Depth to saturated soil: <u>218</u> inches	Other (explain):	
Check all that apply & explain below:		
Stream, Lake or gage data: _____		
Aerial photographs: <input checked="" type="checkbox"/> Other: <u>NW1</u>		
Wetland hydrology present? <input type="radio"/> yes <input checked="" type="radio"/> no		
Rationale for decision/Remarks:		

SOILS

Map Unit Name Ap10SUBPTB3
(Series & Phase)

Drainage Class Very poorly drained

Taxonomy (subgroup) _____

Field observations confirm Yes No
mapped type?

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-13	A1	10YR 3/2	10YR 3/2 3/4	Common fine fuc	sandy clay loam	
13-18	A2	11	10YR 5/6			

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1)-matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:
Soils have chroma of 2 with mottles

Wetland Determination (circle)

- Hydrophytic vegetation present? yes no
- Hydric soils present? yes no
- Wetland hydrology present? yes no
- Is the sampling point within a wetland? yes no

Rationale/Remarks:
Not all criteria are met.

NOTES:

DP-11 is located on upland island within Wetland B.

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadow Springs</u>	Date: <u>6/1/7</u>
Applicant/owner: <u>BCE / Sapphire Sites</u>	County: <u>Kirkland</u> State: <u>WA</u> S/T/R: <u>S12, T19, R14</u>
Investigator(s): <u>AM, LT</u>	Community ID: <u>WkA - Upland</u> Transect ID: <u>025434</u> Parcel # Plot ID: <u>DP12</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	
Explanation of atypical or problem area:	

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Thl sp. arvense</u>	<u>H</u>	<u>1%</u>					
<u>Field pennycress</u>	<u>H</u>	<u>10%</u>					
<u>Forget me not</u>	<u>H</u>	<u>10%</u>					
<u>Poa annua</u>	<u>H</u>	<u>90%</u>	<u>FAC</u>				
<u>Cirsium arvense</u>	<u>H</u>	<u>1%</u>					

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 100%

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	_____	Physiological/reproductive adaptations	_____
Morphological adaptations	_____	Wetland plant database	<u>X</u>
Technical Literature	_____	Personal knowledge of regional plant communities	_____
Other (explain)	_____	Other (explain)	_____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: yes <input type="radio"/> no <input checked="" type="radio"/>	Sediment Deposits: yes <input type="radio"/> no <input checked="" type="radio"/>
Based on: <u>Date</u> soil temp (record temp _____) other (explain) _____	Drift Lines: yes <input type="radio"/> no <input checked="" type="radio"/>	Drainage Patterns: yes <input type="radio"/> no <input checked="" type="radio"/>
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. yes <input type="radio"/> no <input checked="" type="radio"/>	Local Soil Survey: <input checked="" type="radio"/> yes <input type="radio"/> no
Depth to free water in pit: <u>>18</u> inches	FAC Neutral: yes <input type="radio"/> no <input checked="" type="radio"/>	Water-stained Leaves yes <input type="radio"/> no <input checked="" type="radio"/>
Depth to saturated soil: <u>>10</u> inches	Other (explain):	
Check all that apply & explain below: Stream, Lake or gage data: _____ Aerial photographs: _____ Other: _____		
Wetland hydrology present? <input type="radio"/> yes <input checked="" type="radio"/> no	Rationale for decision/Remarks:	

SOILS

Map Unit Name Quicksell
(Series & Phase)

Drainage Class Somewhat poorly Drain

Taxonomy (subgroup) Fine, mixed, Superactive

Field observations confirm mapped type? Yes No

Most extent Agr. soils

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-16	A	10YR2/1	—	—	loam	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:

Wetland Determination (circle)

Hydrophytic vegetation present? yes no
 Hydric soils present? yes no
 Wetland hydrology present? yes no
 Is the sampling point within a wetland? yes no

Rationale/Remarks:

close to WL edge. Ditch effectively draining. ^{likely} Reh2, hydric soils
 No FFW plants in ~~nearby~~ plot. \neq some FFW species

NOTES:

location w of Ditch in WL A. meadow under

Map DP13

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadow Spring</u>	Date: <u>6/1/12</u>
Applicant/owner: <u>BCE / Sapnvest</u>	County: <u>King</u> State: <u>WA</u> S/T/R: <u>S2, T19, R44</u>
Investigator(s): <u>AM LT</u>	Community ID: <u>WAA</u> Transect ID: Plot ID: <u>DP13</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	
Is the site significantly disturbed (atypical situation)? <input checked="" type="radio"/> yes <input type="radio"/> no	
Is the area a potential Problem Area? <input checked="" type="radio"/> yes <input type="radio"/> no	
Explanation of atypical or problem area:	

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Phalaris arundinacea</u>	<u>H</u>	<u>70%</u>	<u>FAW</u>				
<u>Panicum lasiocarpum</u>	<u>H</u>	<u>5%</u>	<u>FA</u>				
<u>Abrotanum viride</u>	<u>H</u>	<u>15%</u>	<u>FAW</u>				
<u>Alnus sibirica</u>	<u>T</u>	<u>30%</u>	<u>FAW</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 100%

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation _____	Physiological/reproductive adaptations _____
Morphological adaptations _____	Wetland plant database _____
Technical Literature _____	Personal knowledge of regional plant communities _____
	Other (explain) _____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: yes <input type="radio"/> no <input checked="" type="radio"/>	Sediment Deposits: yes <input type="radio"/> no <input checked="" type="radio"/>
Based on: <u>Date</u> soil temp (record temp _____) other (explain)	Drift Lines: yes <input type="radio"/> no <input checked="" type="radio"/>	Drainage Patterns: yes <input type="radio"/> no <input checked="" type="radio"/>
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. yes <input type="radio"/> no <input checked="" type="radio"/>	Local Soil Survey: yes <input type="radio"/> no <input checked="" type="radio"/>
Depth to free water in pit: <u>16</u> inches	FAC Neutral: yes <input checked="" type="radio"/> no <input type="radio"/>	Water-stained Leaves yes <input type="radio"/> no <input checked="" type="radio"/>
Depth to saturated soil: <u>12</u> inches	Other (explain):	
Check all that apply & explain below:		
Stream, Lake or gage data: _____		
Aerial photographs: _____ Other: _____		
Wetland hydrology present? <input checked="" type="radio"/> yes <input type="radio"/> no		
Rationale for decision/Remarks:		

SOILS

Map Unit Name Quirkell
(Series & Phase)

Drainage Class Somewhat poorly drained

Taxonomy (subgroup) Fine, mixed, Superactive, mesic
Xerol Argialbolls

Field observations confirm Yes No
mapped type?

Profile Description						
Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-16	A	10R 2/1	—	—	loam	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no
Rationale for decision/Remarks:

Wetland Determination (circle)

Hydrophytic vegetation present? yes no
Hydric soils present? yes no
Wetland hydrology present? yes no
Is the sampling point within a wetland? yes no

Rationale/Remarks:

WFA near ditch

NOTES:

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadow Springs</u>	Date: <u>6/11/07</u>
Applicant/owner: <u>BCE / Sapphire Skies</u>	County: <u>LeWitt</u>
Investigator(s): <u>A. Merrill, L. Thomson</u>	State: <u>WA</u>
	S/TR: <u>S12, J19, R14</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	Community ID: <u>2</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	Transect ID:
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	Plot ID: <u>DP-14</u>
Explanation of atypical or problem area:	

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Symphoricarpos albus</u>	<u>S</u>	<u>3</u>	<u>FACW</u>	<u>Morha sp.</u>	<u>H</u>		
<u>Achillea millefolium</u>	<u>H</u>	<u>15</u>	<u>FACU</u>				
<u>Poa pratensis</u>	<u>H</u>	<u>140</u>	<u>FAC</u>				
<u>Chrysanthemum leucanth.</u>	<u>H</u>	<u>10</u>	<u>NL</u>				
<u>Myosotis sp.</u>	<u>H</u>	<u>15</u>					
<u>Bromus sp.</u>		<u>20</u>	<u>FACU</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC > 50

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	_____	Physiological/reproductive adaptations	_____
Morphological adaptations	_____	Wetland plant database	<u>X</u>
Technical Literature	_____	Personal knowledge of regional plant communities	_____
		Other (explain)	_____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks: Bromus is likely FACU; however, exact species unknown. Still does not affect Wetland Veg. status.

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: <input type="radio"/> yes <input checked="" type="radio"/> no	Sediment Deposits: <input type="radio"/> yes <input checked="" type="radio"/> no
Based on: _____ soil temp (record temp _____) Date of year _____ other (explain)	Drift Lines: <input type="radio"/> yes <input checked="" type="radio"/> no	Drainage Patterns: <input type="radio"/> yes <input checked="" type="radio"/> no
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. <input checked="" type="radio"/> yes <input type="radio"/> no	Local Soil Survey: <input type="radio"/> yes <input checked="" type="radio"/> no
Depth to free water in pit: _____ inches	FAC Neutral: <input type="radio"/> yes <input type="radio"/> no	Water-stained Leaves <input type="radio"/> yes <input checked="" type="radio"/> no
Depth to saturated soil: _____ inches	Other (explain):	
Check all that apply & explain below:		
Stream, Lake or gage data: _____		
Aerial photographs: _____ Other: _____		

Wetland hydrology present? yes no

Rationale for decision/Remarks: soils dry / no evidence of wetland hydrology

SOILS

Map Unit Name Quicksell
(Series & Phase)

Drainage Class Somehow poorly dr

Taxonomy (subgroup) Fine, mixed, suberactive, loessic
Xen Arg. Typo. US

Field observations confirm Yes No
mapped type?

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-8	A	10YR 3/2	10YR 3/2		loam	
8-16	B	10YR 4/4	10YR 3/6	dist, com, fine	loam	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:

No hydric soil indicators observed.

Wetland Determination (circle)

- Hydrophytic vegetation present? yes no
- Hydric soils present? yes no
- Wetland hydrology present? yes no
- Is the sampling point within a wetland? yes no

Rationale/Remarks:

No wetland criteria met.

NOTES:

*DP-14 is located in upland "bitter" in wetland A.
Area is meadow habitat.*

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadow Springs</u>	Date: <u>6/11/07</u>
Applicant/owner: <u>BCE / Saphiresky</u>	County: <u>Kit. Plus</u>
Investigator(s): <u>A. Manil, L. Th...</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	S/TR: <u>S12, T19, R14</u>
Is the site significantly disturbed (atypical situation)? <input checked="" type="radio"/> yes <input type="radio"/> no	Community ID: <u>Wetland A</u>
Is the area a potential Problem Area? <input checked="" type="radio"/> yes <input type="radio"/> no	Transect ID:
Explanation of atypical or problem area:	Plot ID: <u>DP-15</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Alnus sitchensis</u>	<u>S</u>	<u>80</u>	<u>FACW</u>				
<u>Scirpus microcarpus</u>	<u>H</u>	<u>75</u>	<u>OBL</u>				
<u>Heracleum lanatum</u>	<u>H</u>	<u>5</u>	<u>FAC+</u>				
<u>Oenanthe sarmentosa</u>	<u>H</u>	<u>10</u>	<u>OBL</u>				
<u>Equisetum arvense</u>	<u>H</u>	<u>10</u>	<u>FAC</u>				
<u>Epilobium cicutaria(?)</u>	<u>H</u>	<u>20</u>	<u>FAC-</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 100

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	_____	Physiological/reproductive adaptations	_____
Morphological adaptations	_____	Wetland plant database	<u>X</u>
Technical Literature	_____	Personal knowledge of regional plant communities	<u>X</u>
		Other (explain)	

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? yes no

Based on: _____ soil temp (record temp _____)
Time of year other (explain)

Dept. of inundation: _____ inches	Water Marks: yes <input type="radio"/> no <input checked="" type="radio"/>	Sediment Deposits: yes <input type="radio"/> no <input checked="" type="radio"/>
Depth to free water in pit: <u>11</u> inches	Drift Lines: yes <input type="radio"/> no <input checked="" type="radio"/>	Drainage Patterns: yes <input checked="" type="radio"/> no <input type="radio"/>
Depth to saturated soil: <u>5</u> inches	Oxidized Root (live roots) Channels <12 in. yes <input type="radio"/> no <input checked="" type="radio"/>	Local Soil Survey: yes <input type="radio"/> no <input checked="" type="radio"/>
Check all that apply & explain below: Stream, Lake or gage data: _____	FAC Neutral: <input checked="" type="radio"/> yes <input type="radio"/> no	Water-stained Leaves yes <input type="radio"/> no <input checked="" type="radio"/>
Aerial photographs: <u>X</u> Other: _____	Other (explain):	

Wetland hydrology present? yes no

Rationale for decision/Remarks:
Soil saturated at 5"

SOILS

Map Unit Name Quirkzell
(Series & Phase)

Drainage Class Somewhat poorly drained

Taxonomy (subgroup) Fine, mixed, Superactive

Field observations confirm mapped type? Yes No

West Xerox Argillaballs

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-11	A	10YR 2/1	—	—	loam	
11-16+	B	10YR 3/2	10YR 3/6	Common medium prominent	loam	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:

Low-chroma soil matrix observed

Wetland Determination (circle)

- Hydrophytic vegetation present? yes no
- Hydric soils present? yes no
- Wetland hydrology present? yes no
- Is the sampling point within a wetland? yes no

Rationale/Remarks:

All 3 wetland criteria

NOTES:

DP-15 is located in PSS habitat, west of upland meadow area

Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project Site: <u>Meadow Springs</u>	Date: <u>6/11/07</u>
Applicant/Owner: <u>BCE</u>	County: <u>Jefferson</u>
Investigator(s): <u>D. Lopez, A. Merrill, L. Thomson</u>	State: <u>WA</u>
	S/TR: <u>512, T19, R14</u>
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>Wetland A</u> Transect ID: <u>Western portion</u> Plot ID: <u>DP-16</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	
Is the area a potential problem area? <input type="radio"/> Yes <input checked="" type="radio"/> No	

VEGETATION

Dominant Plant Species	Stratum	Percent cover	Indicator	Dominant Plant Species	Stratum	Percent cover	Indicator
<i>Lysichiton american</i>	H	10	OBL	<i>Streptopus amplex. folium</i>	H	5	FAC
<i>Thuja plicata</i>	T	25	FAC	<i>Galium sp.</i>	H	5	FAC
<i>Athyrium filix-femina</i>	H	20	FAC	<i>Smitellina stellata</i>	H	5	FAC
<i>Acer circinatum</i>	S	15	FAC	<i>Cornus stolonifera</i>	S	10	FAC
<i>Equisetum arvense</i>	H	15	FAC				
<i>Oplismenus horridus</i>	S	5	FAC				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 100

Check all indicators that apply & explain below:

Regional knowledge of plant communities _____ Wetland Plant List (Natl or regional) OTHER _____
 Physiological or reproductive adaptations _____ Morphological adaptations _____
 Technical literature _____ Wetland plant data base

Hydrophytic vegetation present: Yes No

Rationale for Decision/Remarks:

Dominant plants are FAC or wetter.

HYDROLOGY

Is it the growing season: Yes <input type="radio"/> No <input checked="" type="radio"/>	Water Marks: Yes <input type="radio"/> No <input checked="" type="radio"/>	Sediment Deposits: Yes <input type="radio"/> No <input checked="" type="radio"/>
Based on:	Drift Lines: Yes <input type="radio"/> No <input checked="" type="radio"/>	Drainage Patterns: Yes <input checked="" type="radio"/> No <input type="radio"/>
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. Yes <input checked="" type="radio"/>	Local Soil Survey: Yes <input type="radio"/> No <input checked="" type="radio"/>
Depth to free water in pit: <u>0</u> inches	FAC Neutral: Yes <input type="radio"/> No <input checked="" type="radio"/>	Water-stained Leaves: Yes <input checked="" type="radio"/>
Depth to saturated soil: <u>surface</u> inches	Other:	
Check all that apply & explain below: Stream, lake or gage data: _____ Aerial photographs: <input checked="" type="checkbox"/> _____ Other: _____		

Wetland hydrology present? Yes No

Rationale for decision/remarks:

soil saturated to surface

SOILS

Map Unit Name Quicksell
(Series & Phase)

Drainage Class Somewhat poorly drained

Taxonomy (subgroup) Fine, mixed, silty, micaceous, kaolinitic, xanthic, fragipallic

Field observations confirm mapped type? Yes No

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-12	A	10YR 2/1			nick	
12-18+	OB	2.5Y 4/2	10YR 4/4 10YR 4/6	com. nod, faint	silty clay	

Hydric Soil Indicators: (Check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic moisture regime
- Reducing conditions
- Gleyed or low-chroma colors
- Concretions
- High organic content in surface layer of sandy soils
- Organic streaking in sandy soils
- Listed on Local Hydric Soils List
- Listed on National Hydric Soils List
- Other (explain in remarks)

Hydric soils present? Yes No

Rationale for decision/remarks:
Low-chroma matrix observed

Wetland Determination (circle)

Hydrophytic vegetation present? Yes No

Hydric soils present? Yes No

Is the sampling point within a wetland? Yes No

Wetland hydrology present? Yes No

Rationale/Remarks:

All 3 wetland criteria met.

NOTES:

DP-16 is located in western, PFD portion of wetland A. Active seeps observed. ~~Wetland~~ ^{plot} is located downslope of Plot A-42

ROUTINE WETLAND DETERMINATION
 (WA State Wetland Delineation Manual or
 1987 Corps Wetland Delineation Manual)

Project Site: <u>MEADOW SPRINGS</u>	Date: <u>6/11/07</u>
Applicant/Owner: <u>BLE/SAPPHIRE SKIES</u>	County: <u>KITITAS</u>
Investigator(s): <u>LT, AM, IL</u>	State: <u>WA</u>
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	S/T/R: <u>S1, T19, R14</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	Community ID: <u>UPLAND</u>
Is the area a potential problem area? <input type="radio"/> Yes <input checked="" type="radio"/> No	Transect ID:
	Plot ID: <u>DP-17</u>

VEGETATION

Dominant Plant Species	Stratum	Percent cover	Indicator	Dominant Plant Species	Stratum	Percent cover	Indicator
<u>Poa pratensis</u>	<u>H</u>	<u>80</u>	<u>FAC</u>				
<u>Diactylis glomerata</u>	<u>H</u>	<u>20</u>	<u>FACU</u>				
<u>Leucanthemum vulgare</u>	<u>H</u>	<u>10</u>	<u>NI</u> FAC				
<u>Ranunculus acris</u>	<u>H</u>	<u>10</u>	<u>FACW</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 50

Check all indicators that apply & explain below:

- Regional knowledge of plant communities _____ Wetland Plant List (Natl or regional) X OTHER _____
- Physiological or reproductive adaptations _____ Morphological adaptations _____
- Technical literature _____ Wetland plant data base X

Hydrophytic vegetation present: Yes No

Rationale for Decision/Remarks:

Only 50% of dominants are OBL, FACW, or FAC

HYDROLOGY

Is it the growing season: <input checked="" type="radio"/> Yes <input type="radio"/> No	Water Marks: Yes <input checked="" type="radio"/> No	Sediment Deposits: Yes <input checked="" type="radio"/> No
Based on: <u>DATA</u>	Drift Lines: Yes <input checked="" type="radio"/> No	Drainage Patterns: Yes <input checked="" type="radio"/> No
Dept. of inundation: <u><</u> inches	Oxidized Root (live roots) Channels <12 in. Yes <input checked="" type="radio"/> No	Local Soil Survey: Yes <input checked="" type="radio"/> No
Depth to free water in pit: <u>>18</u> inches	FAC Neutral: Yes <input checked="" type="radio"/> No	Water-stained Leaves: Yes <input checked="" type="radio"/> No
Depth to saturated soil: <u>>18</u> inches	Other:	
Check all that apply & explain below:		
Stream, lake or gage data: _____		
Aerial photographs: _____		
Other: _____		

Wetland hydrology present? Yes No

Rationale for decision/remarks:

No indicators present

SOILS

Map Unit Name Quicksell
(Series & Phase)

Drainage Class Somewhat poorly drained

Taxonomy (subgroup) Fine mixed, superactive
Mollic xerol Argialbolls

Field observations confirm mapped type? Yes No

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-18	A	10YR 7/1	—	—	silty loam	

Hydric Soil Indicators: (Check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic moisture regime
- Reducing conditions
- Gleyed or low-chroma colors
- Concretions
- High organic content in surface layer of sandy soils
- Organic streaking in sandy soils
- Listed on Local Hydric Soils List
- Listed on National Hydric Soils List
- Other (explain in remarks)

Hydric soils present? Yes No

Rationale for decision/remarks:
Soil is chroma 1.

Wetland Determination (circle)

- Hydrophytic vegetation present? Yes No
- Hydric soils present? Yes No
- Wetland hydrology present? Yes No
- Is the sampling point within a wetland? Yes No

Rationale/Remarks:
Not all 3 criteria are met

NOTES: DP-17 located north of Wetland C approx 5'.
Approx 10' north of DP is E-W ditch that runs
thru parkway corridor. Upland dominates corridor, compacted
soil, *Poa pratensis*, *Dactylis glomerata*.

Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project Site: <u>MORROW SPRINGS</u>	Date: <u>6/11/07</u>
Applicant/Owner: <u>BCE / SAPPHIRE SLICES</u>	County: <u>KITITAS</u>
Investigator(s): <u>LT, AM, JL</u>	State: <u>WA</u>
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	S/T/R: <u>SL, J1, R14</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	Community ID: <u>WETLAND C</u>
Is the area a potential problem area? <input type="radio"/> Yes <input checked="" type="radio"/> No	Transect ID: <u>between WL-B & WL-A</u>
	Plot ID: <u>DP-18</u>

VEGETATION

Dominant Plant Species	Stratum	Percent cover	Indicator	Dominant Plant Species	Stratum	Percent cover	Indicator
<i>Scirpus microcarpus</i>	H	50	OBL				
<i>Sagittatum arvense</i>	H	20	FAC				
<i>Carex sp</i>	H	20	FAC ^{Wetland}				
unknown Yellow flower	H	20					
<i>Poa polystris</i>	H	30	FAC				
<i>Veronica beccabunga</i>	H	10	OBL				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: >90%

Check all indicators that apply & explain below:

Regional knowledge of plant communities _____ Wetland Plant List (Natl or regional) OTHER _____
 Physiological or reproductive adaptations _____ Morphological adaptations _____
 Technical literature _____ Wetland plant data base

Hydrophytic vegetation present: Yes No

Rationale for Decision/Remarks:

More than 50% are OBL, FACW, or FAC

HYDROLOGY

Is it the growing season: Yes No

Based on: DATE

Dept. of inundation: _____ inches

Depth to free water in pit: 11 inches

Depth to saturated soil: 0 inches

Check all that apply & explain below:

Stream, lake or gage data: _____

Aerial photographs: _____

Other: _____

Water Marks: Yes No

Drift Lines: Yes No

Oxidized Root (live roots)

Channels <12 in. Yes No

FAC Neutral: Yes No

Other:

Sediment Deposits: Yes No

Drainage Patterns: Yes No

Local Soil Survey: Yes No

Water-stained Leaves: Yes No

Wetland hydrology present? Yes No

Rationale for decision/remarks:

Soils are set to surface. Standing water nearby ~ 6" deep

SOILS

Map Unit Name Quirksett
(Series & Phase)

Drainage Class Somewhat poorly drained

Taxonomy (subgroup) Fine, mixed superactive
MUSC Xeric Argibolls

Field observations confirm mapped type? Yes No

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-11	A1	pYR 7/1	—	—	silty clay loam	
11-13	A2	10YR 4/4			"	
13-18+	B	10YR 2/1	—	—	sandy clay loam	

Hydric Soil Indicators: (Check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Concretions |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> High organic content in surface layer of sandy soils |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Organic streaking in sandy soils |
| <input type="checkbox"/> Aquic moisture regime | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Reducing conditions | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Gleyed or low-chroma colors | <input type="checkbox"/> Other (explain in remarks) |

Hydric soils present? Yes No
Rationale for decision/remarks:

close to mapped soil description but not quite

Wetland Determination (circle)

Hydrophytic vegetation present? Yes No
Hydric soils present? Yes No
Wetland hydrology present? Yes No

Is the sampling point within a wetland? Yes No

Rationale/Remarks:

All 3 criteria are met.

NOTES:

located in Wetland C, small circular PEM, isolated w/ no outlet (does not connect to E-W ditch). May have been excavated as farm pond, but now is mostly reg'd w/ much soils.

Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project Site: <u>MEADOW SPRINGS</u>	Date: <u>6/11/07</u>
Applicant/Owner: <u>BCE / SAPPHIRE SKIES</u>	County: <u>KITITAS</u>
Investigator(s): <u>LT, AM, JL</u>	State: <u>WA</u>
	S/T/R: <u>SI, TA, RUF</u>
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>WETLAND D</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	Transect ID:
Is the area a potential problem area? <input type="radio"/> Yes <input checked="" type="radio"/> No	Plot ID: <u>DP-19</u>

VEGETATION

Dominant Plant Species	Stratum	Percent cover	Indicator	Dominant Plant Species	Stratum	Percent cover	Indicator
<u>Poa pratensis</u>	<u>H</u>	<u>60</u>	<u>FAC</u>	<u>Trifolium pratense</u>	<u>H</u>	<u>10</u>	<u>FACU</u>
<u>Ranunculus acris</u>	<u>H</u>	<u>40</u>	<u>FACW</u>	<u>Spilobium</u>	<u>H</u>	<u>20</u>	<u>FACW-</u>
<u>Trifolium repens</u>	<u>H</u>	<u>10</u>	<u>FAC^W</u>				
<u>Carex striata</u>	<u>H</u>	<u>30</u>	<u>OBL</u>				
<u>Carex sp.</u>	<u>H</u>	<u>20</u>	<u>FAC^W wet</u>				
<u>Silochloa sp.</u>	<u>H</u>	<u>40</u>	<u>FACW-</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 100%

Check all indicators that apply & explain below:

Regional knowledge of plant communities _____ Wetland Plant List (Natl or regional) X OTHER _____
 Physiological or reproductive adaptations _____ Morphological adaptations _____
 Technical literature _____ Wetland plant data base X

Hydrophytic vegetation present: Yes No

Rationale for Decision/Remarks:
All dominants are OBL, FACW or FAC.

HYDROLOGY

Is it the growing season: Yes No

Based on: DATE
 Dept. of inundation: _____ inches
 Depth to free water in pit: 12 inches
 Depth to saturated soil: 6 inches

Water Marks: Yes <input type="radio"/> No <input checked="" type="radio"/>	Sediment Deposits: Yes <input type="radio"/> No <input checked="" type="radio"/>
Drift Lines: Yes <input type="radio"/> No <input checked="" type="radio"/>	Drainage Patterns: Yes <input type="radio"/> No <input checked="" type="radio"/>
Oxidized Root (live roots) Channels <12 in. Yes <input type="radio"/> No <input checked="" type="radio"/>	Local Soil Survey: Yes <input type="radio"/> No <input checked="" type="radio"/>
FAC Neutral: <input checked="" type="radio"/> Yes <input type="radio"/> No	Water-stained Leaves: Yes <input type="radio"/> No <input checked="" type="radio"/>

Check all that apply & explain below:
 Stream, lake or gage data: _____
 Aerial photographs: X
 Other: _____

Wetland hydrology present? Yes No

Rationale for decision/remarks:

DATA FORM 1
 Routine Wetland Determination
 (WA State Wetland Delineation Manual or
 1987 Corps Wetland Delineation Manual)

Project Site: <u>Meadow Springs</u>	Date: <u>6/12/7</u>
Applicant/Owner: <u>Saphire Skies / BCF</u>	County: <u>Kittitas</u>
Investigator(s): <u>LT AM</u>	State: <u>WA</u>
	S/T/R: <u>S1, T1, P14</u>
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>WPL + WLE</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	Transect ID: _____
Is the area a potential problem area? <input type="radio"/> Yes <input checked="" type="radio"/> No	Plot ID: <u>DP20</u>

VEGETATION

Dominant Plant Species	Stratum	Percent cover	Indicator	Dominant Plant Species	Stratum	Percent cover	Indicator
<u>Holodiscus discolor</u>	<u>S</u>	<u>20</u>	<u>FAC</u> <u>NI</u>	<u>Acer circinatum</u>	<u>S</u>	<u>20</u>	<u>FACU</u>
<u>Populus balsamifera</u>	<u>T</u>	<u>40</u>	<u>FAC</u>	<u>Rubus emarginata</u>	<u>T/S</u>	<u>20</u>	<u>FACU</u>
<u>Symphoricarpos albus</u>	<u>S</u>	<u>20</u>	<u>FACU</u>				
<u>Rubus parviflorus</u>	<u>S</u>	<u>15</u>	<u>FAC</u>				
<u>Populus tremuloides</u>	<u>T</u>	<u>40</u>	<u>FAC</u>				
<u>Rosa pratincola</u>	<u>S</u>	<u>10</u>	<u>FAC</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 50

Check all indicators that apply & explain below:

Regional knowledge of plant communities _____ Wetland Plant List (Nat'l or regional) X OTHER _____
 Physiological or reproductive adaptations _____ Morphological adaptations _____
 Technical literature _____ Wetland plant data base X

Hydrophytic vegetation present: Yes No

Rationale for Decision/Remarks:

HYDROLOGY

Is it the growing season: <input checked="" type="radio"/> Yes <input type="radio"/> No	Water Marks: Yes <input type="radio"/> No <input checked="" type="radio"/>	Sediment Deposits: Yes <input type="radio"/> No <input checked="" type="radio"/>
Based on: <u>Date</u>	Drift Lines: Yes <input type="radio"/> No <input checked="" type="radio"/>	Drainage Patterns: Yes <input type="radio"/> No <input checked="" type="radio"/>
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. Yes <input type="radio"/> No <input checked="" type="radio"/>	Local Soil Survey: Yes <input type="radio"/> No <input checked="" type="radio"/>
Depth to free water in pit: <u>>12</u> inches	FAC Neutral: Yes <input type="radio"/> No <input checked="" type="radio"/>	Water-stained Leaves: Yes <input type="radio"/> No <input checked="" type="radio"/>
Depth to saturated soil: <u>>12</u> inches	Other: _____	
Check all that apply & explain below: Stream, lake or gage data: _____ Aerial photographs: <u>X</u> Other: _____		

Wetland hydrology present? Yes No

Rationale for decision/remarks: Dry

SOILS

Map Unit Name Quicksilt
(Series & Phase)

Drainage Class Somewhat poorly drained

Taxonomy (subgroup) Fine mixed, Superactive
Mastic Xc2 Azialbolls

Field observations confirm mapped type? Yes No

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-6	A	10YR2/2	—	—	sandy loam	
6-11	B	10YR3/3	10YR4/6	Few, faint, fine	Sandy loam	
11+	too compact to sample					

Hydric Soil Indicators: (Check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Concretions |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> High organic content in surface layer of sandy soils |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Organic streaking in sandy soils |
| <input type="checkbox"/> Aquic moisture regime | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Reducing conditions | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Gleyed or low-chroma colors | <input type="checkbox"/> Other (explain in remarks) |

Hydric soils present? Yes No
Rationale for decision/remarks:

Wetland Determination (circle)

Hydrophytic vegetation present? Yes No
 Hydric soils present? Yes No Is the sampling point within a wetland? Yes No
 Wetland hydrology present? Yes No

Rationale/Remarks:

NOTES:

ROUTINE WETLAND DETERMINATION
 (WA State Wetland Delineation Manual or
 1987 Corps Wetland Delineation Manual)

Project Site: <u>Meadow Springs</u>	Date: <u>6/12/7</u>
Applicant/Owner: <u>Saphire Skies / BLE</u>	County: <u>Kittitas</u>
Investigator(s): <u>LT AM</u>	State: <u>WA</u>
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	S/T/R:
Is the site significantly disturbed (atypical situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	Community ID: <u>WLE</u>
Is the area a potential problem area? <input type="radio"/> Yes <input checked="" type="radio"/> No	Transect ID: <u>NE corner of 2140</u>
	Plot ID: <u>DP21</u>

VEGETATION

Dominant Plant Species	Stratum	Percent cover	Indicator	Dominant Plant Species	Stratum	Percent cover	Indicator
<u>Scirpus mizus campestris</u>	<u>H</u>	<u>70</u>	<u>OBL</u>	<u>Equisetum arvense</u>	<u>H</u>	<u>20</u>	<u>FAC</u>
<u>Rubus parviflorus</u>	<u>S</u>	<u>5</u>	<u>FAC</u>	<u>Ailanthus grandis</u>	<u>T</u>	<u>2</u>	
<u>Populus tremuloides</u>	<u>T</u>	<u>15</u>	<u>FAC</u>	<u>Corylus cornuta</u>	<u>S</u>	<u>5</u>	<u>FAC</u>
<u>Prunus emarginata</u>	<u>T</u>	<u>10</u>		<u>Cornus stolonifera</u>	<u>S</u>	<u>10</u>	<u>FAC</u>
<u>Populus balsamifera</u>	<u>T</u>	<u>30</u>	<u>FAC</u>				
<u>Samolus virginicus albus</u>	<u>S</u>	<u>15</u>					

HYDROPHYTIC VEGETATION INDICATORS: upland species on edge & hummocks

% of dominants OBL, FACW, & FAC: 100

Check all indicators that apply & explain below:

Regional knowledge of plant communities _____ Wetland Plant List (Natl or regional) OTHER _____
 Physiological or reproductive adaptations _____ Morphological adaptations _____
 Technical literature _____ Wetland plant data base

Hydrophytic vegetation present: Yes No

Rationale for Decision/Remarks:

HYDROLOGY

Is it the growing season: Yes No

Based on: Date

Dept. of inundation: _____ inches

Depth to free water in pit: 16+ inches

Depth to saturated soil: Surface inches

Check all that apply & explain below:

Stream, lake or gage data: _____

Aerial photographs: _____

Other: _____

Water Marks: Yes No

Drift Lines: Yes No

Oxidized Root (live roots)
Channels <12 in. Yes No

FAC Neutral: Yes No

Other:

Sediment Deposits: Yes No

Drainage Patterns: Yes No

Local Soil Survey: Yes No

Water-stained
Leaves: Yes No

Wetland hydrology present? Yes No

Rationale for decision/remarks:

SOILS

Map Unit Name Roslyn
(Series & Phase)

Drainage Class well drained

Taxonomy (subgroup) Coarse-loamy
ISO III, Entic Andic Dystraxepts

Field observations confirm mapped type? Yes No

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-6	A	10YR3/2	—	—	Sandy loam	
6-18	B	10YR3/1	7.5YR 4/6	Common, Fine, Prominent	Sandy loam	

Hydric Soil Indicators: (Check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic moisture regime
- Reducing conditions
- Gleyed or low-chroma colors
- Concretions
- High organic content in surface layer of sandy soils
- Organic streaking in sandy soils
- Listed on Local Hydric Soils List
- Listed on National Hydric Soils List
- Other (explain in remarks)

Hydric soils present? Yes No
Rationale for decision/remarks:

Wetland Determination (circle)

Hydrophytic vegetation present? Yes No
 Hydric soils present? Yes No
 Wetland hydrology present? Yes No
 Is the sampling point within a wetland? Yes No

Rationale/Remarks:

NOTES:

DATA FORM 1
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project Site: <u>MEADOW SPRINGS</u>	Date: <u>6/14/07</u>
Applicant/Owner: <u>SAPPHIRE SKIES IBL</u>	County: <u>KITITAS</u>
Investigator(s): <u>LT, AM, JL</u>	State: <u>WA</u>
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	S/T/R: <u>SI, T19, R14</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	Community ID: <u>UPLAND near WLD</u>
Is the area a potential problem area? <input type="radio"/> Yes <input checked="" type="radio"/> No	Transect ID:
	Plot ID: <u>DP-22</u>

VEGETATION

Dominant Plant Species	Stratum	Percent cover	Indicator	Dominant Plant Species	Stratum	Percent cover	Indicator
<u>Poa pratensis</u>	<u>H</u>	<u>60</u>	<u>FAC</u>				
<u>Chrysanthemum leucanth.</u>	<u>H</u>	<u>30</u>	<u>NL</u>				
<u>Ranunculus acris</u>	<u>H</u>	<u>10</u>	<u>FACW</u>				
<u>Tritolium pratense</u>	<u>H</u>	<u>10</u>	<u>FACU</u>				
<u>Juncus sp.</u>	<u>H</u>	<u>30</u>	<u>FAC in water</u>				
<u>Phleum pratense</u>	<u>H</u>	<u>10</u>	<u>FACW</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 50%

Check all indicators that apply & explain below:

Regional knowledge of plant communities _____ Wetland Plant List (Natl or regional) X OTHER _____
 Physiological or reproductive adaptations _____ Morphological adaptations _____
 Technical literature _____ Wetland plant data base X

Hydrophytic vegetation present: Yes No

Rationale for Decision/Remarks:

Only 50% of dominants are OBL, FACW or FAC

HYDROLOGY

Is it the growing season: Yes No

Based on: DATE

Dept. of inundation: - inches

Depth to free water in pit: 218 inches

Depth to saturated soil: 218 inches

Check all that apply & explain below:

Stream, lake or gage data: _____

Aerial photographs: _____

Other: _____

Wetland hydrology present? Yes No

Rationale for decision/remarks:

No indicators present.

Water Marks: Yes <input type="radio"/> No <input checked="" type="radio"/>	Sediment Deposits: Yes <input type="radio"/> No <input checked="" type="radio"/>
Drift Lines: Yes <input type="radio"/> No <input checked="" type="radio"/>	Drainage Patterns: Yes <input type="radio"/> No <input checked="" type="radio"/>
Oxidized Root (live roots) Channels <12 in. Yes <input type="radio"/> No <input checked="" type="radio"/>	Local Soil Survey: Yes <input type="radio"/> No <input checked="" type="radio"/>
FAC Neutral: Yes <input type="radio"/> No <input checked="" type="radio"/>	Water-stained Leaves: Yes <input type="radio"/> No <input checked="" type="radio"/>

Other: _____

SOILS

Map Unit Name Dystrochere, PT3
(Series & Phase)

Drainage Class Well drained

Taxonomy (subgroup) _____

Field observations confirm mapped type? Yes No

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-12	10YR 2/1 A	10YR 2/1	—	—	silty clay loam	
12-18	B	2.5Y 4/1	10YR 3/3	common med, prom	silty clay	
			10YR 4/4	"		
			10YR 2/1, depletions			

Hydric Soil Indicators: (Check all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Concretions |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> High organic content in surface layer of sandy soils |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Organic streaking in sandy soils |
| <input type="checkbox"/> Aquic moisture regime | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Reducing conditions | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input checked="" type="checkbox"/> Gleyed or low-chroma colors | <input type="checkbox"/> Other (explain in remarks) |

Hydric soils present? Yes No

Rationale for decision/remarks:
Soil contains hydric indicators

Wetland Determination (circle)

- | | |
|---|---|
| Hydrophytic vegetation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the sampling point within a wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| Hydric soils present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| Wetland hydrology present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | |

Rationale/Remarks:

Not all criteria are met

NOTES:

DP-22 located east of WL D. Area contains hydric soils and several hydrophytic species (not dominant), but lacks a wetland hydrologic regime. Ditches excavated in wetland that effectively drain portions of riparian corridor.

Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project/Site: <u>Meadow Springs</u>	Date: <u>6/12/07</u>
Applicant/owner: <u>BCE / Sophie Skiles</u>	County: <u>Kittitas</u>
Investigator(s): <u>R. Merrill, L. Thurston</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	S/T/R: <u>1/T14N/R14E</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	Community ID: <u>2</u>
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	Transect ID:
Explanation of atypical or problem area:	Plot ID: <u>01-24</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<i>Symphoricarpos albus</i>	S	30	FACU				
<i>Pseudotsuga menziesii</i>	T	25	FACU				
<i>Rubus spectabilis</i>	S	10	FAC+				
<i>Halodiscus discolor</i>	S	10	NL				
<i>Loisix occidentalis</i>	T	20	FALV+				
<i>Abies grandis</i>	T	10	FACV-				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 0

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	_____	Physiological/reproductive adaptations	_____
Morphological adaptations	_____	Wetland plant database	<u>X</u>
Technical Literature	_____	Personal knowledge of regional plant communities	_____
		Other (explain)	_____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:
Area not dominated by hydrophytic veg.

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: yes <input type="radio"/> no <input checked="" type="radio"/>	Sediment Deposits: yes <input type="radio"/> no <input checked="" type="radio"/>
Based on: _____ soil temp (record temp _____) <u>time of year</u> other (explain)	Drift Lines: yes <input type="radio"/> no <input checked="" type="radio"/>	Drainage Patterns: <input checked="" type="radio"/> yes <input type="radio"/> no
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in.: yes <input type="radio"/> no <input checked="" type="radio"/>	Local Soil Survey: yes <input type="radio"/> no <input checked="" type="radio"/>
Depth to free water in pit: _____ inches	FAC Neutral: yes <input type="radio"/> no <input checked="" type="radio"/>	Water-stained Leaves yes <input type="radio"/> no <input checked="" type="radio"/>
Depth to saturated soil: _____ inches	Other (explain):	
Check all that apply & explain below: Stream, Lake or gage data: _____ Aerial photographs: _____ Other: _____		

Wetland hydrology present? yes no

Rationale for decision/Remarks:
soil logs: no evidence of wetland hydrology

SOILS

Map Unit Name Volcanic ash sandy loam
 (Series & Phase) 20-60% clays

Drainage Class well drained

Field observations confirm Yes No

Taxonomy (subgroup) _____

mapped type?

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-16	A	7.5YR 4/4	—	—	Sandy loam	

Hydric Soil Indicators: (check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma (=1) matrix
- Matrix chroma ≤ 2 with mottles
- Mg or Fe Concretions
- High Organic Content in Surface Layer of Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on National/Local Hydric Soils List
- Other (explain in remarks)

Hydric soils present? yes no

Rationale for decision/Remarks:

No hydric indicators observed.

Wetland Determination (circle)

Hydrophytic vegetation present? yes no
 Hydric soils present? yes no
 Wetland hydrology present? yes no

Is the sampling point within a wetland? yes no

Rationale/Remarks:

No wetland criteria met.

NOTES:

Plot is on 'Tamarok Ridge' site, near road culvert, in a drainage feature.

Area appears to contain infrequent flows water, but does not contain wetland characteristics.

Revised 4/97

DATA FORM 1
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project Site: <u>Tanaseak Ridge</u>	Date: <u>June 12, 2007</u>
Applicant/Owner: <u>Saphire Skies / BLE</u>	County: <u>Kittitas</u>
Investigator(s): <u>LT, AM</u>	State: <u>WA</u>
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	S/T/R: <u>S1/T19/E14</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	Community ID: <u>UPLand</u>
Is the area a potential problem area? <input type="radio"/> Yes <input checked="" type="radio"/> No	Transect ID: <u>South of 21140</u>
	Plot ID: <u>25</u>

VEGETATION

Dominant Plant Species	Stratum	Percent cover	Indicator	Dominant Plant Species	Stratum	Percent cover	Indicator
<u>Holodiscus discolor</u>	<u>S</u>	<u>15</u>	<u>FAC</u>	<u>Vicia ssp</u>	<u>H</u>	<u>5</u>	<u>?</u>
<u>Rubus ursinus</u>	<u>V</u>	<u>5</u>	<u>FACU</u>	<u>Patentilla gracilis</u>	<u>H</u>	<u>2</u>	<u>FAC</u>
<u>Ribes hudsonianum</u>	<u>S</u>	<u>2</u>	<u>FACW</u>	<u>Pinus ponderosa</u>	<u>T</u>	<u>2</u>	<u>FACU</u>
<u>Rosa gymnocarpa</u>	<u>S</u>	<u>5</u>	<u>FACU</u>	<u>Symphoricarpos albus</u>	<u>S</u>	<u>30</u>	<u>FACU</u>
<u>Pseudotsuga menziesii</u>	<u>T</u>	<u>5</u>	<u>FACU</u>				
<u>Pteridium aquilinum</u>	<u>H</u>	<u>2</u>	<u>FACU</u>				
<u>Parthenocissus vitacea</u>	<u>H</u>	<u>2</u>	<u>FACW</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC:

Check all indicators that apply & explain below:

Regional knowledge of plant communities _____ Wetland Plant List (Nat'l or regional) OTHER _____

Physiological or reproductive adaptations _____ Morphological adaptations _____

Technical literature _____ Wetland plant data base

Hydrophytic vegetation present: Yes No

Rationale for Decision/Remarks:

HYDROLOGY

Is it the growing season: <input checked="" type="radio"/> Yes <input type="radio"/> No	Water Marks: Yes <input type="radio"/> No <input checked="" type="radio"/>	Sediment Deposits: Yes <input type="radio"/> No <input checked="" type="radio"/>
Based on: <u>Date</u>	Drift Lines: Yes <input checked="" type="radio"/> No <input type="radio"/>	Drainage Patterns: Yes <input type="radio"/> No <input checked="" type="radio"/>
Dept. of inundation: <u>NA</u> inches	Oxidized Root (live roots) Channels <12 in. Yes <input type="radio"/> No <input checked="" type="radio"/>	Local Soil Survey: Yes <input type="radio"/> No <input checked="" type="radio"/>
Depth to free water in pit: <u>>18</u> inches	FAC Neutral: Yes <input type="radio"/> No <input checked="" type="radio"/>	Water-stained Leaves: Yes <input type="radio"/> No <input checked="" type="radio"/>
Depth to saturated soil: <u>>18</u> inches	Other: <u>Dry draw</u>	
Check all that apply & explain below:		
Stream, lake or gage data: _____		
Aerial photographs: <input checked="" type="checkbox"/>		
Other: _____		

Wetland hydrology present? Yes No

Rationale for decision/remarks:

SOILS

Map Unit Name Volpene
(Series & Phase)

Drainage Class well drained

Taxonomy (subgroup) Coarse-loamy, silty, clayey, frigid, A, Udic, Dystric Vertisols

Field observations confirm mapped type? Yes No

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-16	A	10YR 3/3	—	—	Sandy loam	

Hydric Soil Indicators: (Check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Concretions |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> High organic content in surface layer of sandy soils |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Organic streaking in sandy soils |
| <input type="checkbox"/> Aquic moisture regime | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Reducing conditions | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Gleyed or low-chroma colors | <input type="checkbox"/> Other (explain in remarks) |

Hydric soils present? Yes No
Rationale for decision/remarks:

Wetland Determination (circle)

Hydrophytic vegetation present? Yes No
 Hydric soils present? Yes No
 Wetland hydrology present? Yes No
 Is the sampling point within a wetland? Yes No

Rationale/Remarks:

located in dry draw

NOTES:

DATA FORM 1
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project Site: <u>Starline Estates</u>	Date: <u>June 12, 2007</u>
Applicant/Owner: <u>Starline Estates</u>	County: <u>King</u>
Investigator(s): <u>LT. Ann</u>	State: <u>WA</u>
	S/T/R: <u>51/T19/214</u>
Do normal circumstances exist on the site? Yes <input checked="" type="radio"/> No <input type="radio"/>	Community ID: <u>upland</u>
Is the site significantly disturbed (atypical situation)? Yes <input type="radio"/> No <input checked="" type="radio"/>	Transect ID: <u>Near Wetland F</u>
Is the area a potential problem area? Yes <input type="radio"/> No <input checked="" type="radio"/>	Plot ID: <u>26</u>

VEGETATION

Dominant Plant Species	Stratum	Percent cover	Indicator	Dominant Plant Species	Stratum	Percent cover	Indicator
<u>Rubus ursinus</u>	<u>V</u>	<u>2</u>	<u>FACU</u>				
<u>Fragaria virginiana</u>	<u>H</u>	<u>5</u>	<u>FACU</u>				
<u>Pendulocarya menziesii</u>	<u>T</u>	<u>1</u>	<u>FACU</u>				
<u>Poa palustris</u>	<u>H</u>	<u>80-90</u>	<u>FAC</u>				
<u>Carex sp</u>	<u>H</u>	<u>10</u>	<u>FAC/W</u>				
<u>Ranunculus acris</u>	<u>H</u>	<u>2</u>	<u>FACW</u>				
<u>Monarda linearis</u>	<u>H</u>	<u>5</u>	<u>UNK</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 100

Check all indicators that apply & explain below:

Regional knowledge of plant communities _____ Wetland Plant List (Natl or regional) X OTHER _____
 Physiological or reproductive adaptations _____ Morphological adaptations _____
 Technical literature _____ Wetland plant data base X

Hydrophytic vegetation present: Yes No

Rationale for Decision/Remarks:

Vegetation meets criteria; however NO dominant FACW or OBL so is a weak indicator since FAC can grow in uplands 33-66% of time

HYDROLOGY

Is it the growing season: Yes No

Based on: Date

Depth of inundation: NA inches

Depth to free water in pit: >16 inches

Depth to saturated soil: >16 inches

Check all that apply & explain below:

Stream, lake or gage data: _____

Aerial photographs: X

Other: _____

Water Marks: Yes <input type="radio"/> No <input checked="" type="radio"/>	Sediment Deposits: Yes <input type="radio"/> No <input checked="" type="radio"/>
Drift Lines: Yes <input type="radio"/> No <input checked="" type="radio"/>	Drainage Patterns: Yes <input type="radio"/> No <input checked="" type="radio"/>
Oxidized Root (live roots) Channels <12 in. Yes <input type="radio"/> No <input checked="" type="radio"/>	Local Soil Survey: Yes <input type="radio"/> No <input checked="" type="radio"/>
FAC Neutral: Yes <input type="radio"/> No <input checked="" type="radio"/>	Water-stained Leaves: Yes <input type="radio"/> No <input checked="" type="radio"/>

Other: _____

Wetland hydrology present? Yes No

Rationale for decision/remarks:

SOILS

Map Unit Name Quick Sand loam 0-508 Drainage Class: Somewhat poorly drained
 (Series & Phase)
 Taxonomy (subgroup) Fine mixed, superactive Field observations confirm mapped type? Yes No
Mesc Xeric ArgillaBalks

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-10	A	10YR 3/3	—	—	Sandy loam	
10-16	B	10YR 4/3	7.5YR 4/4	Common Fine Faint	silt loam	

Hydric Soil Indicators: (Check all that apply)

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High organic content in surface layer of sandy soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic streaking in sandy soils
<input type="checkbox"/> Aquic moisture regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Gleyed or low-chroma colors	<input type="checkbox"/> Other (explain in remarks)

Hydric soils present? Yes No
 Rationale for decision/remarks:

Wetland Determination (circle)

Hydrophytic vegetation present? Yes No
 Hydric soils present? Yes No
 Wetland hydrology present? Yes No
 Is the sampling point within a wetland? Yes No

Rationale/Remarks:
 near Wetland F. likely seasonally ponded/saturated; however, not during growing season, or drains rapidly

NOTES: topo low
 wet from winter storm events

DATA FORM 1
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project Site: <u>Starlite Estates</u>	Date: <u>June 12, 2007</u>
Applicant/Owner: <u>Supreme Skies / BCE</u>	County: <u>Kittitas</u>
Investigator(s): <u>LT, JL</u>	State: <u>WA</u> S/TR: <u>51/T19/1214</u>
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>Wetland F</u> Transect ID: <u>SW of 19148</u> Plot ID: <u>27</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	
Is the area a potential problem area? <input type="radio"/> Yes <input checked="" type="radio"/> No	

VEGETATION

Dominant Plant Species	Stratum	Percent cover	Indicator	Dominant Plant Species	Stratum	Percent cover	Indicator
<u>Poa pusilla</u>	<u>H</u>	<u>90%</u>	<u>FAC</u>				
<u>Achillea millefolium</u>	<u>H</u>	<u>20</u>	<u>FACW</u>				
<u>Lotus corniculatus</u>	<u>H</u>	<u>90%</u>	<u>FAC</u>				
<u>Carex sp.</u>	<u>H</u>	<u>10</u>	<u>FAC/+</u>				
<u>Panicum repens</u>	<u>H</u>	<u>20%</u>	<u>FACW</u>				
<u>Epilobium ciliatum</u>	<u>H</u>	<u>15%</u>	<u>FACW</u>				
<u>Symphoricarpos albus</u>	<u>S</u>	<u>5</u>	<u>FACW</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 75%

Check all indicators that apply & explain below:

Regional knowledge of plant communities _____ Wetland Plant List (Natl or regional) OTHER _____
 Physiological or reproductive adaptations _____ Morphological adaptations _____
 Technical literature Wetland plant data base

Hydrophytic vegetation present: Yes No

Rationale for Decision/Remarks:

HYDROLOGY

Is it the growing season: <input checked="" type="radio"/> Yes <input type="radio"/> No	Water Marks: Yes <input type="radio"/> No <input checked="" type="radio"/>	Sediment Deposits: Yes <input type="radio"/> No <input checked="" type="radio"/>
Based on: <u>Date</u>	Drift Lines: <input checked="" type="radio"/> Yes <input type="radio"/> No	Drainage Patterns: <input checked="" type="radio"/> Yes <input type="radio"/> No
Dept. of inundation: <u>NA</u> inches	Oxidized Root (live roots) Channels <12 in. Yes <input type="radio"/> No <input checked="" type="radio"/>	Local Soil Survey: Yes <input type="radio"/> No <input checked="" type="radio"/>
Depth to free water in pit: <u>718</u> inches	FAC Neutral: <input checked="" type="radio"/> Yes <input type="radio"/> No	Water-stained Leaves: Yes <input type="radio"/> No <input checked="" type="radio"/>
Depth to saturated soil: <u>4"</u> inches	Other: <u>NWI mapped wetland PEM</u>	
Check all that apply & explain below: Stream, lake or gage data: _____ Aerial photographs: <input checked="" type="checkbox"/> _____ Other: <u>NWI map</u>		

Wetland hydrology present? Yes No

Rationale for decision/remarks:

Substratum w/in upper 12" meets FAC Neutral, drainage patterns, drift lines

SOILS

Map Unit Name Volcanic 130-60%
(Series & Phase)

Drainage Class Somewhat poorly drained

Taxonomy (subgroup) Coarse loamy, silty, frigid X Andic, distric

Field observations confirm mapped type? Yes No

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-15	A	10YR 2/2	10YR 4/4	common, median, distinct	Sandy clay loam	
15-18	B	10YR 4/3	10YR 4/6	common, medium, distinct	Silty clay loam	

Hydric Soil Indicators: (Check all that apply)

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic moisture regime
- Reducing conditions
- Gleyed or low-chroma colors
- Concretions
- High organic content in surface layer of sandy soils
- Organic streaking in sandy soils
- Listed on Local Hydric Soils List
- Listed on National Hydric Soils List
- Other (explain in remarks)

Hydric soils present? Yes No
Rationale for decision/remarks:

Wetland Determination (circle)

Hydrophytic vegetation present? Yes No
Hydric soils present? Yes No
Wetland hydrology present? Yes No
Is the sampling point within a wetland? Yes No

Rationale/Remarks:

in topo low
Not mapped wetland, significant break in vegetation & soil moisture

NOTES:

DATA FORM 1
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project Site: <u>Starlite Estates</u>	Date: <u>June 17, 2007</u>						
Applicant/Owner: <u>Supreme Skies / BUE</u>	County: <u>Kittitas</u>						
Investigator(s): <u>LT/L</u>	State: <u>Washington</u>						
Do normal circumstances exist on the site? Is the site significantly disturbed (atypical situation)? Is the area a potential problem area?	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Yes <input checked="" type="radio"/></td> <td style="text-align: center;">No <input type="radio"/></td> </tr> <tr> <td style="text-align: center;">Yes <input type="radio"/></td> <td style="text-align: center;">No <input checked="" type="radio"/></td> </tr> <tr> <td style="text-align: center;">Yes <input type="radio"/></td> <td style="text-align: center;">No <input checked="" type="radio"/></td> </tr> </table>	Yes <input checked="" type="radio"/>	No <input type="radio"/>	Yes <input type="radio"/>	No <input checked="" type="radio"/>	Yes <input type="radio"/>	No <input checked="" type="radio"/>
Yes <input checked="" type="radio"/>	No <input type="radio"/>						
Yes <input type="radio"/>	No <input checked="" type="radio"/>						
Yes <input type="radio"/>	No <input checked="" type="radio"/>						
	S/T/R: <u>51 7/2 R14</u> Community ID: <u>upland</u> Transect ID: <u>near wetland F</u> Plot ID: <u>29</u>						

VEGETATION

Dominant Plant Species	Stratum	Percent cover	Indicator	Dominant Plant Species	Stratum	Percent cover	Indicator
<u>Poa palustris</u>	<u>H</u>	<u>80</u>	<u>FAC</u>				
<u>Adiantum millefolium</u>	<u>H</u>	<u>20</u>	<u>FAC</u>				
<u>Plantago lanceolata</u>	<u>A</u>	<u>20</u>	<u>FAC</u>				
<u>Vicia sp</u>	<u>H</u>	<u>10</u>	<u>?</u>				
<u>Myosotis alpestris</u>	<u>H</u>	<u>5</u>	<u>FAC</u>				
<u>Rubus ursinus</u>	<u>H/W</u>	<u>2</u>	<u>FAC</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 60%

Check all indicators that apply & explain below:

Regional knowledge of plant communities _____ Wetland Plant List (Natl or regional) X OTHER _____
 Physiological or reproductive adaptations _____ Morphological adaptations _____
 Technical literature X Wetland plant data base X

Hydrophytic vegetation present: Yes No

Rationale for Decision/Remarks:

However, weak indicator since no FACW / or OBL species in sample plot or in dominant species

HYDROLOGY

Is it the growing season: Yes No

Based on: Date

Dept. of inundation: NA inches

Depth to free water in pit: > 6 inches

Depth to saturated soil: > 6 inches

Check all that apply & explain below:

Stream, lake or gage data: _____

Aerial photographs: _____

Other: _____

Water Marks: Yes <input type="radio"/> No <input checked="" type="radio"/>	Sediment Deposits: Yes <input type="radio"/> No <input checked="" type="radio"/>
Drift Lines: Yes <input checked="" type="radio"/> No <input type="radio"/>	Drainage Patterns: Yes <input checked="" type="radio"/> No <input type="radio"/>
Oxidized Root (live roots): Yes <input type="radio"/> No <input checked="" type="radio"/>	Local Soil Survey: Yes <input type="radio"/> No <input checked="" type="radio"/>
Channels <12 in. Yes <input type="radio"/> No <input checked="" type="radio"/>	FAC Neutral: Yes <input type="radio"/> No <input checked="" type="radio"/>
FAC Neutral: Yes <input type="radio"/> No <input checked="" type="radio"/>	Water-stained Leaves: Yes <input type="radio"/> No <input checked="" type="radio"/>

Other: Dry drop near WLF

Wetland hydrology present? Yes No

Rationale for decision/remarks:

SOILS

Map Unit Name Quicksand loam 0-5%
(Series & Phase)

Drainage Class Somewhat poorly drained

Taxonomy (subgroup) Fine, mixed, superactive
Mollic Xeric Argiobolls

Field observations confirm mapped type? Yes No

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-10	A	10YR 3/3	—	—	Sandy loam	
10-16	B	10YR 4/3	7.5 YR 4/4	common Fw, Faint	Silt loam	

Hydric Soil Indicators: (Check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Concretions |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> High organic content in surface layer of sandy soils |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Organic streaking in sandy soils |
| <input type="checkbox"/> Aquic moisture regime | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Reducing conditions | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Gleyed or low-chroma colors | <input type="checkbox"/> Other (explain in remarks) |

Hydric soils present? Yes No
Rationale for decision/remarks:

Wetland Determination (circle)

Hydrophytic vegetation present? Yes No
 Hydric soils present? Yes No
 Wetland hydrology present? Yes No
 Is the sampling point within a wetland? Yes No

Rationale/Remarks:

Near wetland but not wetland

NOTES: Slightly upslope from DP27

APPENDIX C: WETLAND RATING FORMS

WETLAND RATING FORM – EASTERN WASHINGTON

Version 2 - Updated June 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland A Date of site visit: 6/12/07

Rated by A. Merrill, J. Logan Trained by Ecology? Yes No Date of training 2006

SEC: 12 TOWNSHIP: 19N RANGE: 14E Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 3 Estimated size _____ → see report

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I II III IV

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

Score for "Water Quality" Functions

16

Score for Hydrologic Functions

12

Score for Habitat Functions

30

TOTAL score for functions

58

Category based on SPECIAL CHARACTERISTICS of wetland

I II III Does not Apply

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

II

Summary of basic information about the wetland unit

Wetland Type	Wetland Class	
Vernal Pool	Depressional	
Alkali	Riverine	
Natural Heritage Wetland	Lake-fringe	
Bog	Slope	<input checked="" type="checkbox"/>
Forest		
None of the above	<input checked="" type="checkbox"/> Check if unit has multiple HGM classes present	

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
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		X
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. 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

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

1. Does the entire wetland unit **meet both** of the following criteria?
 The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
 At least 30% of the open water area is deeper than 3 m (10 ft)?
 NO - go to Step 2 **YES** - The wetland class is **Lake-fringe (lacustrine fringe)**

2. Does the entire wetland unit **meet all** of the following criteria?
 The wetland is on a slope (*slope can be very gradual*),
 The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
 The water leaves the wetland **without being impounded**?
 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 entire wetland unit 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 entire wetland unit 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 unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

Wetland name or number A

HGM Classes Within One Delineated Wetland Boundary	Class to Use for Rating
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.

WETLAND RATING FORM – EASTERN WASHINGTON

Version 2 - Updated June 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland F Date of site visit: 6/12/07

Rated by Lara Thomas, I Logn Trained by Ecology? Yes No Date of training Spring 2006

SEC: 1 TOWNSHIP: 9 RANGE: 14 Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 3 Estimated size _____ → see report

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I II III IV

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

Score for "Water Quality" Functions	<u>7</u>
Score for Hydrologic Functions	<u>12</u>
Score for Habitat Functions	<u>9</u>
TOTAL score for functions	<u>28</u>

Category based on SPECIAL CHARACTERISTICS of wetland

I II III Does not Apply

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

<u>IV</u>

Summary of basic information about the wetland unit

Wetland Type	Wetland Class
Vernal Pool	Depressional
Alkali	Riverine
Natural Heritage Wetland	Lake-fringe
Bog	Slope <input checked="" type="checkbox"/>
Forest	
None of the above	<input checked="" type="checkbox"/> Check if unit has multiple HGM classes present

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
<p>SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.</p>		X
<p>SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).</p>		X
<p>SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i></p>		X
<p>SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> 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.</p>		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. 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

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

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

The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

At least 30% of the open water area is deeper than 3 m (10 ft)?
NO - go to Step 2 **YES** - The wetland class is **Lake-fringe (lacustrine fringe)**

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

The wetland is on a slope (*slope can be very gradual*);

The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

The water leaves the wetland **without being impounded**?
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 entire wetland unit 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 entire wetland unit 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 unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. **NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.**

27

Wetland name or number 12

HGM Classes Within One Delineated Wetland Boundary	Class to Use for Rating
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.

S Slope Wetlands		Points
WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality		(only score per box)
S	S 1.0 Does the wetland have the <u>potential</u> to improve water quality?	(see p.56)
S	S 1.1 Characteristics of average slope of wetland: Slope is 1% or less (a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance) points = 3 Slope is between 1% and 2% points = 2 Slope is more than 2% but less than 5% points = <u>1</u> Slope is 5% or greater points = 0	1
S	S 1.2 The soil 2 inches below the surface is clay or organic (use NRCS definitions of soil types) YES = 3 points NO = <u>0</u> points	0
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches. Dense, ungrazed, herbaceous vegetation > 90% of the wetland unit points = <u>6</u> Dense, ungrazed, herbaceous vegetation > 1/2 of unit points = 3 Dense, woody, vegetation > 1/2 of unit points = 2 Dense, ungrazed, herbaceous vegetation > 1/4 of unit points = 1 Does not meet any of the criteria above for herbaceous vegetation points = 0 <u>Aerial photo or map with vegetation polygons</u>	6
S	Total for S 1 Add the points in the boxes above	7
S	S 2.0 Does the wetland have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. — Grazing in the wetland or within 150ft — Wetland is a groundwater seep within the Reclamation Area — Untreated stormwater flows through the wetland — Tilled fields or orchards within 150 feet of wetland — Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other _____ YES multiplier is 2 NO multiplier is 1	(see p.58) multiplier 1
S	TOTAL - Water Quality Functions Multiply the score from S1 by the multiplier in S2 Record score on p. 1 of field form	7

NO HAYING IN THIS AREA

S Slope Wetlands		Points
HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation		(only for score 1-100)
S	S 3.0 Does the wetland unit have the <u>potential</u> 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. See question S 1.3 for definition of dense and uncut. Rigid means that the stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows. Dense, uncut, rigid vegetation covers > 90% of the area of the unit points = 6 Dense, uncut, rigid vegetation > 1/2 - 90% area of unit points = 3 Dense, uncut, rigid vegetation > 1/4 - 1/2 of unit points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	3
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	2
S	Total for S3 Add the points in the boxes above	5
S	S 4.0 Does the wetland unit have the <u>opportunity</u> 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 2
S	TOTAL - Hydrologic Functions Multiply the score from S3 by the multiplier in S4 Record score on p. 1 of field form	12

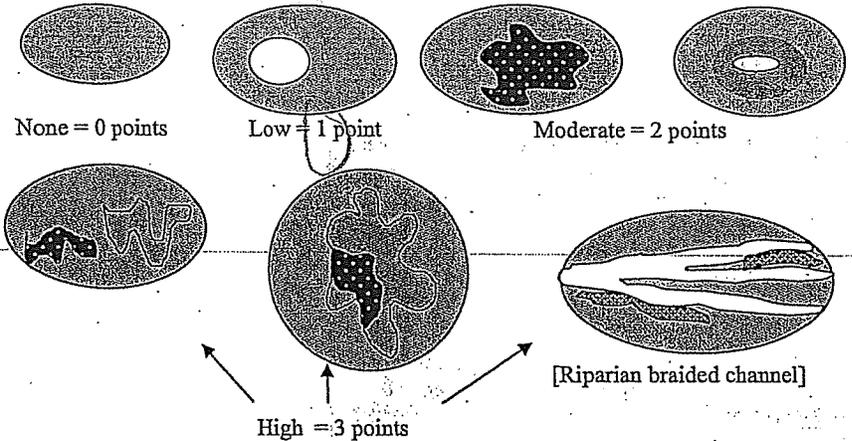
Comments

NO DOWNSTREAM PROPERTY, BUT WETLAND MAY EVENTUALLY CONNECT OR CONTRIBUTE TO STREAM/WETLAND A LOCATED TO SOUTH; A CONSERVATIVE ESTIMATE.

<i>These questions apply to wetlands of all HIGM classes</i>		Points (only 1 score per question)
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat		
H 1. Does the wetland unit have the potential to provide habitat for many species?		
H 1.1 Categories of vegetation structure (see p.62) Check the vegetation classes (as defined by Cowardin) and heights of emergents present. Size threshold for each class or height category is 1/4 acre or more than 10% of the area if unit is < 2.5 acres. <input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants 0-12 in. (0 - 30 cm) high are the highest layer and have > 30% cover <input checked="" type="checkbox"/> Emergent plants >12 - 40 in. (>30 - 100cm) high are the highest layer with >30% cover. <input type="checkbox"/> Emergent plants > 40 in. (> 100cm) high are the highest layer with >30% cover <input checked="" type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input type="checkbox"/> Forested (areas where trees have >30% cover)		Figure
Add the number of vegetation types that qualify. If you have: 4-6 types points = 3 3 types points = 2 2 types points = 1 1 type points = 0		1
Map of Cowardin vegetation classes and areas with different heights of emergents		
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 unit have areas of "open" water (without herbaceous or shrub plants) over at least 1/4 acre or 10% of its area during the spring (March - early June) OR in early fall (August - end of September)? <i>Note: answer YES for Lake-fringe wetlands</i> YES = 3 points & go to H 1.4 NO = go to H 1.3.2 H 1.3.2 Does the unit have an intermittent or permanent stream within its boundaries, or along one side, over at least 1/4 acre or 10% of its area, AND that has an unvegetated bottom (answer yes only if H 1.3.1 is NO)? YES = 3 points NO = 0 points		Figure
Map showing areas of open water		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 ft ² . (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, 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 List species below if you wish		
		2

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

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



NOTE: If you have four or more vegetation categories or three vegetation categories and open water the rating is always "high". Use maps from H1.1 and H1.3

Figure

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

Check the habitat features that are present in the wetland unit. 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 unit.
- Standing snags (diameter at the bottom > 4 inches) in the wetland unit or within 30 m (100ft) 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
- Invasive species cover less than 20% in each stratum of vegetation (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)

Maximum score possible = 6

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

1

0

4

Comments

H 2.0 Does the wetland have the opportunity to provide habitat for many species?	Figure
<p>H 2.1 Buffers (see p. 71) <i>Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed." Relatively undisturbed also means no grazing, no landscaping, no daily human use, and no structures or paving within undisturbed part of buffer.</i></p> <ul style="list-style-type: none"> — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference Points = 5 <input checked="" type="checkbox"/> 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 <p style="text-align: center;">If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> — 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 <p style="text-align: center;"><u>Aerial photo showing buffers</u></p>	4
<p>H 2.2 Wet Corridors (see p. 72)</p> <p>H 2.2.1 Is the wetland unit part of a relatively undisturbed and unbroken, > 30 ft wide, vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? (<i>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</i>).</p> <p style="padding-left: 40px;">YES = 4 points (go to H 2.3) NO = go to H 2.2.2</p> <p>H 2.2.2 Is the unit part of a relatively undisturbed and unbroken, > 30 ft wide, 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?</p> <p style="padding-left: 40px;">YES = 2 points (go to H 2.3) NO go to H 2.2.3</p> <p>H 2.2.3 Is the wetland within a 1/2-mile of any permanent stream, seasonal stream, or lake (<i>do not include man-made ditches</i>)?</p> <p style="padding-left: 40px;">YES = 1 point NO = 0 points</p>	C

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 unit?

NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions.

Check with your local DFW biologist if there are any questions.

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 than 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

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list.

Nearby wetlands are addressed in question H 2.4)

Comments

0

<p>H 2.4 Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 76)</p> <ul style="list-style-type: none"> — The wetland unit 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 <input checked="" type="checkbox"/> There is at least 1 wetland within ½ mile. NEARBY A points = 1 — Does not meet any of the four criteria above points = 0 	1
<p>H 2. TOTAL Score - opportunity for providing habitat Add the scores in the column above</p>	5
<p>H 3.0 Does the wetland unit have indicators that its ability to provide habitat is reduced?</p>	
<p>H 3.1 Indicator of reduced habitat functions (see p. 75) Do the areas of open water in the wetland unit 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)</p> <p style="text-align: center;">YES = - 5 points NO = 0 points</p>	<p>Points will be subtracted</p>
<p>Total Score for Habitat Functions – add the points for H 1, H 2, and H 3 and record the result on p. 1</p>	9

Comments

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland unit meets the attributes described below and circle the appropriate Category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All units should also be characterized based on their functions.

Wetland Type <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	Category
<p>SC 1.0 Vernal pools (see p. 79)</p> <p>Is the wetland unit less than 4000 ft², and does it meet at least two of the following criteria?</p> <ul style="list-style-type: none"> — 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 120 days during the "wet" season. <p>YES = Go to SC 1.1 NO - not a vernal pool</p> <p>SC 1.1 Is the vernal pool relatively undisturbed in February and March?</p> <p>YES = Go to SC 1.2 NO - not a vernal pool with special characteristics</p>	
<p>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.)?</p> <p>YES = Category II NO = Category III</p>	<p>Cat. II Cat. III</p>
<p>SC 2.0 Alkali wetlands (see p. 81)</p> <p>Does the wetland unit meets one of the following two criteria?</p> <ul style="list-style-type: none"> — 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. <p>OR does the wetland unit meets two of the following three sub-criteria?</p> <ul style="list-style-type: none"> — 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. <p>YES = Category I NO - not an alkali wetland</p>	<p>Cat. I</p>