

## **APPENDIX A**

### **Wetland Delineation Data Forms**



Project Site: <u>Framel Creek Mitigation</u>		Sampling Date: <u>12-11-09</u>
Applicant/Owner: <u>City of Bonney Lake</u>		Sampling Point: <u>4M-SPI</u>
Investigator: <u>Chirc Hoffman, Erik Christensen</u>		City/County: <u>Bonney Lake, Pierce</u>
Section, Township, Range: <u>Sec 4, T19N, R5E</u>		State: <u>WA</u>
Landform (hillslope, terrace, etc) <u>Flood Plain</u> Slope (%)		Local relief (concave, convex, none)
Subregion (LRR) <u>A</u>	Lat	Long Datum
Soil Map Unit Name <u>Buckley loam</u>		NWI classification <u>PEM</u>
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		

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

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this 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	
Remarks: <u>All three wetland indicators are present.</u>	

**VEGETATION - Use scientific names of plants.**

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1.				Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A)	
2.				Total Number of Dominant Species Across All Strata: <u>2</u> (B)	
3.				Percent of Dominant Species that are OBL, FACW, or FAC: <u>100</u> (A/B)	
4.					
_____ = Total Cover.					
Sapling/Shrub Stratum (Plot size _____)				Prevalence Index Worksheet	
1.				Total % Cover of	
2.				Multiply by	
3.				OBL species	x1 =
4.				FACW species	x2 =
5.				FAC species	x3 =
_____ = Total Cover				FACU species	x4 =
				UPL species	x5 =
				Column totals	(A) (B)
Herb Stratum (Plot size <u>2M</u> )				Prevalence Index = B / A =	
1. <u>Juncus effusus</u>	<u>70</u>	<u>Y</u>	<u>FACW</u>		
2. <u>Carex abnupta</u>	<u>10</u>	<u>N</u>	<u>OBL</u>		
3. <u>Schedonorus phoenix</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>		
4. <u>Cirsium arvens</u>	<u>Trace</u>	<u>N</u>	<u>FACU</u>		
5.					
6.					
7.					
8.					
9.					
10.					
11.					
<u>120</u> = Total Cover					
Woody Vine Stratum (Plot size _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1.					
2.					
_____ = Total Cover					
% Bare Ground in Herb Stratum <u>0</u>					
Remarks: <u>Hydrophytic vegetation is dominant.</u>					

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10YR 2/1	100					loam	
10-18	10YR 3/2, 10YR 3/1	95	5YR 7/6	5	C	M	loam	

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

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

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

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

- |   |
|---|
| <input type="checkbox"/> 2cm Muok (A10)             |
| <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Other (explain in remarks) |

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

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (Inches): \_\_\_\_\_

Hydric soil present?

Yes

No

Remarks: Two matrix colors are present in the second layer. Hydric soil indicators are present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required):

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

Field Observations

- |   |                              |  |             |   |
|---|------------------------------|--|-------------|---|
| Surface Water Present?                          | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Depth (In): | — |
| Water Table Present?                            | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Depth (In): | — |
| Saturation Present? (includes capillary fringe) | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Depth (In): | 8 |

Wetland Hydrology Present?

Yes

No

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

Remarks: Wetland hydrology indicators are present.

Project Site: <u>Funnel Creek mitigation</u>	Sampling Date: <u>12-11-09</u>
Applicant/Owner: <u>City of Bonney Lake</u>	Sampling Point: <u>4M SP-2</u>
Investigator: <u>Clair Hoffman, Erik Christensen</u>	City/County: <u>Bonney Lake, Pierce</u>
Section, Township, Range: <u>Sec 4, T19N, R5E</u>	State: <u>WA</u>
Landform (hillslope, terrace, etc): <u>Flood plain</u> Slope (%) <u>8°</u>	Local relief (concave, convex, none): <u>Slope</u>
Subregion (LRR) <u>A</u> Lat	Long Datum
Soil Map Unit Name <u>Buckley loam</u>	NWI classification <u>Upland Forest</u>
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?	
(If needed, explain any answers in Remarks.)	

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

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point within a Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soils Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Remarks:	

**VEGETATION - Use scientific names of plants.**

Tree Stratum (Plot size <u>10m</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. <u>Thuja plicata</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u>	(A)
2. <u>Alnus rubra</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>2</u>	(B)
3. <u>Acer macrophyllum</u>	<u>5</u>	<u>N</u>	<u>FACU</u>		
<u>70</u> = Total Cover				Percent of Dominant Species that are OBL, FACW, or FAC: <u>50</u>	(A/B)
Sapling/Shrub Stratum (Plot size <u>5m</u> )				Prevalence Index Worksheet	
1. <u>Alnus rubra</u>	<u>Trace</u>	<u>N</u>	<u>FAC</u>	Total % Cover of	
2.				OBL species	x 1 =
3.				FACW species	x 2 =
4.				FAC species	x 3 =
5.				FACU species	x 4 =
<u>Trace</u> = Total Cover				UPL species	x 5 =
				Column totals	(A) (B)
				Prevalence Index = B / A =	
Herb Stratum (Plot size <u>2m</u> )				Hydrophytic Vegetation Indicators	
1. <u>Pteridium aquilinum</u>	<u>Trace</u>	<u>N</u>	<u>FACU</u>	Dominance test is > 50%	
2.				Prevalence test is ≤ 3.0*	
3.				Morphological Adaptations* (provide supporting data in remarks or on a separate sheet)	
4.				Wetland Non-Vascular Plants*	
5.				Problematic Hydrophytic Vegetation* (explain)	
6.					
7.					
8.					
9.					
10.					
11.					
<u>Trace</u> = Total Cover				* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
Woody Vine Stratum (Plot size <u>2m</u> )				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
1. <u>Rubus armeniacus</u>	<u>95</u>	<u>Y</u>	<u>FACU</u>		
2. <u>Rubus laciniatus</u>	<u>10</u>	<u>N</u>	<u>FACU</u>		
<u>105</u> = Total Cover					
% Bare Ground in Herb Stratum <u>0</u>					
Remarks: <u>Hydrophytic vegetation is not more than 50 percent cover.</u>					

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	7.5YR 3/2	50	-	-	-	-	loam	2 matrix colors
0-14	7.5YR 4/3	50	-	-	-	-	loam	
14-18	10YR 7/4	100	-	-	-	-	silt loam	with rubble

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

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

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

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

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

- 2cm Muok (A10)
- Red Parent Material (TF2)
- Other (explain in remarks)

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

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (Inches): \_\_\_\_\_

Hydric soil present?

Yes

No

Remarks: Two matrix colors are present in the upper horizon. No hydric soil indicators are present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

- Sparingly Vegetated Concave Surface (B8)
- Water-Stained Leaves (except MLRA 1, 2, 4A & 4B) (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (explain in remarks)

Secondary Indicators (2 or more required):

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C8)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks

Field Observations

- Surface Water Present?  Yes  No    Depth (in): -
- Water Table Present?  Yes  No    Depth (in): -
- Saturation Present?  Yes  No    Depth (in): -  
(Includes capillary fringe)

Wetland Hydrology Present?

Yes

No

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

Remarks: No wetland hydrology indicators are present.

Project Site: <u>Fernald Creek Mitigation Site</u>	Sampling Date: <u>12-15-09</u>
Applicant/Owner: <u>City of Bonney Lake</u>	Sampling Point: <u>4M-SP3</u>
Investigator: <u>Eric Christensen Chris Hoffman</u>	City/County: <u>Bonney Lake, Pierce</u>
Section, Township, Range: <u>Sec 4, T 1 N, R 5 E</u>	State: <u>WA</u>
Landform (hilllope, terrace, etc) <u>Flood Plain</u> Slope (%) _____	Local relief (concave, convex, none) <u>None</u>
Subregion (LRR) <u>A</u> Lat _____	Long _____ Datum _____
Soil Map Unit Name <u>Buckley loam</u>	NWI classification _____
Are climatic/hydrologic conditions on the site typical for this time of year? <input type="checkbox"/> Yes <input type="checkbox"/> No	(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?	(If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks: <u>This sample plot is located next to flag # B.</u> <u>Wetland hydrology is not present.</u>	

**VEGETATION - Use scientific names of plants.**

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1.				Number of Dominant Species that are OBL, FACW, or FAC:	<u>2</u> (A)
2.				Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3.				Percent of Dominant Species that are OBL, FACW, or FAC:	<u>100</u> (A/B)
4.					
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size _____)				Prevalence Index Worksheet	
1.				Total % Cover of _____ Multiply by	
2.				OBL species	x 1 =
3.				FACW species	x 2 =
4.				FAC species	x 3 =
5.				FACU species	x 4 =
				UPL species	x 5 =
_____ = Total Cover				Column totals	(A) (B)
Herb Stratum (Plot size <u>2m</u> )				Prevalence Index = B / A =	
1. <u>Aloneerucus sp.</u>	<u>10</u>	<u>N</u>			
2. <u>Cirsium arvense</u>	<u>5</u>	<u>N</u>	<u>FACU</u>		
3. <u>Agrostis stolonifera</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>		
4. <u>Sclerodonorus pharinx</u>	<u>90</u>	<u>Y</u>	<u>FAC</u>		
5. <u>Juncus effusus</u>	<u>10</u>	<u>N</u>	<u>FACW</u>		
6.					
7.					
8.					
9.					
10.					
11.					
<u>135</u> = Total Cover					
Woody Vine Stratum (Plot size <u>2m</u> )				Hydrophytic Vegetation Indicators	
1. <u>Rubus laciniatus</u>	<u>Trace</u>	<u>N</u>	<u>FACU</u>		
2.					
<u>Trace</u> = Total Cover					
% Bare Ground in Herb Stratum <u>0</u>				* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: <u>Hydrophytic vegetation is dominant.</u>					

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 2/1	100	—	—	—	—	loam	
12-18	10YR 5/2	70	5YR 4/6	30	C	M	Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils<sup>a</sup>

- 20m Muck (A10)
- Red Parent Material (TF2)
- Other (explain in remarks)

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

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (Inches): \_\_\_\_\_

Hydric soil present?

Yes

No

Remarks: Soil is hydric.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required):

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C8)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks

Field Observations

- |  |                              |                             |                   |
|--|------------------------------|-----------------------------|-------------------|
| Surface Water Present?                             | <input type="checkbox"/> Yes | <input type="checkbox"/> No | Depth (in): _____ |
| Water Table Present?                               | <input type="checkbox"/> Yes | <input type="checkbox"/> No | Depth (in): _____ |
| Saturation Present?<br>(Includes capillary fringe) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | Depth (in): _____ |

Wetland Hydrology Present?

Yes

No

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

Remarks: No hydrology indicators present.

Project Site: <u>Frank Creek Mitigation</u>		Sampling Date: <u>12-11-09</u>
Applicant/Owner: <u>City of Bonney Lake</u>		Sampling Point: <u>4M-SP4</u>
Investigator: <u>Clair Hoffman, Erik Christensen</u>		City/County: <u>Bonney Lake / Pierce</u>
Section, Township, Range: <u>Sec 4, T19N, R5E</u>		State: <u>WA</u>
Landform (hillslope, terrace, etc) <u>Flood Plain</u> Slope (%) <u>2-5</u>		Local relief (concave, convex, none)
Subregion (LRR) <u>A</u>	Lat	Long Datum
Soil Map Unit Name: <u>Buckley loam</u>		NWI classification
Are climatic/hydrologic conditions on the site typical for this time of year? <input type="checkbox"/> Yes <input type="checkbox"/> No		(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		
(If needed, explain any answers in Remarks.)		

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

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point within a Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soils Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Remarks: <u>This sample plot is located near Flag 13.</u>	

**VEGETATION - Use scientific names of plants.**

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1.				Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A)	
2.				Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
3.				Percent of Dominant Species that are OBL, FACW, or FAC: <u>67</u> (A/B)	
4.					
_____ = Total Cover.					
Sapling/Shrub Stratum (Plot size _____)				Prevalence Index Worksheet	
1.				Total % Cover of	
2.				Multiply by	
3.				OBL species	x 1 =
4.				FACW species	x 2 =
5.				FAC species	x 3 =
_____ = Total Cover				FACU species	x 4 =
				UPL species	x 5 =
				Column totals	(A) (B)
Herb Stratum (Plot size <u>2M</u> )				Prevalence Index = B / A =	
1. <u>Cirsium arvense</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>		
2. <u>Scheuchzeria palustris</u>	<u>100</u>	<u>Y</u>	<u>FAC</u>		
3. <u>Acorus stolonifera</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>		
4. <u>Poa sp.</u>	<u>Trace</u>	<u>N</u>			
5.					
6.					
7.					
8.					
9.					
10.					
11.					
_____ = Total Cover					
Woody Vine Stratum (Plot size <u>2M</u> )				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1. <u>Rubus armeniacus</u>		<u>Trace</u>	<u>N</u>		
2.					
_____ = Total Cover					
% Bare Ground in Herb Stratum					
Remarks: <u>Hydrophytic vegetation is dominant.</u>					

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10 YR 2/2	100	—	—	—	—	loam	
11-18	10 YR 4/3	90	5 YR 5/2	10	—	M	loam	

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

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

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

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

- 2m Muck (A10)
- Red Parent Material (TF2)
- Other (explain in remarks)

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

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (Inches): \_\_\_\_\_

Hydric soil present?

Yes

No

Remarks: No hydric soil indicators are present.

**HYDROLOGY**

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required):

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C8)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ani Mounds (D6) (LRR A)
- Frost-Heave Hummocks

Field Observations

- |   |                              |  |             |   |
|---|------------------------------|--|-------------|---|
| Surface Water Present?                          | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Depth (In): | — |
| Water Table Present?                            | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Depth (In): | — |
| Saturation Present? (includes capillary fringe) | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Depth (In): | — |

Wetland Hydrology Present?

Yes

No

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

Remarks: No wetland hydrology indicators are present.

Project Site: <u>Fennel Creek Mitigation</u>	Sampling Date: <u>12-11-09</u>
Applicant/Owner: <u>City of Bonanza Lake</u>	Sampling Point: <u>4M-SP5</u>
Investigator: <u>Clair Heffman, Derek Christensen</u>	City/County: <u>Bonanza Lake, Pierce</u>
Section, Township, Range: <u>Sec 4, T19N, R5E</u>	State: <u>WA</u>
Landform (hillslope, terrace, etc) <u>Flood Plain</u> Slope (%) _____	Local relief (concave, convex, none) _____
Subregion (LRR) <u>A</u> Lat _____	Long _____ Datum _____
Soil Map Unit Name: <u>Buckley loam</u>	NWI classification _____
Are climatic/hydrologic conditions on the site typical for this time of year? <input type="checkbox"/> Yes <input type="checkbox"/> No	(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?	
(If needed, explain any answers in Remarks.)	

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

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point within a Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soils Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Remarks: _____	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100</u> (A/B)																					
2.																									
3.																									
4.																									
_____ = Total Cover.																									
Sapling/Shrub Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1.				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2">Total % Cover of</th> <th>Multiply by</th> </tr> <tr> <td>OBL species</td> <td></td> <td>x1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </table> Prevalence Index = B / A = _____	Total % Cover of		Multiply by	OBL species		x1 =	FACW species		x2 =	FAC species		x3 =	FACU species		x4 =	UPL species		x5 =	Column totals	(A)	(B)
Total % Cover of		Multiply by																							
OBL species		x1 =																							
FACW species		x2 =																							
FAC species		x3 =																							
FACU species		x4 =																							
UPL species		x5 =																							
Column totals	(A)	(B)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover																									
Herb Stratum (Plot size <u>2M</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators																					
1. <u>Phalaris acutidens</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>	Dominance test is > 50% Prevalence test is ≤ 3.0* Morphological Adaptations* (provide supporting data in remarks or on a separate sheet) Wetland Non-Vascular Plants* Problematic Hydrophytic Vegetation* (explain)																					
2. <u>Juncus effusus</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>																						
3. <u>Poa sp.</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>																						
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
<u>140</u> = Total Cover																									
Woody Vine Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic																					
1.				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																					
2.																									
_____ = Total Cover																									
% Bare Ground in Herb Stratum <u>0</u>																									
Remarks: <u>Dominant vegetation is hydrophytic</u>																									

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 7/1	100	—	—	—	—	lean M	
16-20	10YR 3/2	80	7.5YR 5/2	10	C	M	silty sandy lean	
" "	" "	" "	10YR 4/1	10	D	M	" "	

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

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

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

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

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

- 20m Muok (A10)
- Red Parent Material (TF2)
- Other (explain in remarks)

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

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (Inches): \_\_\_\_\_

Hydric soil present?    Yes     No

Remarks: Hydric soil indicators are present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (except MLRA 1, 2, 4A & 4B) (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (explain in remarks)

Secondary Indicators (2 or more required):

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

Field Observations

Surface Water Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Depth (in):	—
Water Table Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Depth (in):	9
Saturation Present? (Includes capillary fringe)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Depth (in):	Surface

Wetland Hydrology Present?    Yes     No

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

Remarks: Wetland hydrology indicators are present.

Project Site: <u>Fennel Creek Mitigation</u>	Sampling Date: <u>12-11-09</u>
Applicant/Owner: <u>City of Bonney Lake</u>	Sampling Point: <u>4M-38-6</u>
Investigator: <u>Erik Christensen, Claire Hoffman</u>	City/County: <u>Bonney Lake, Pierce</u>
Section, Township, Range: <u>Sec 4, T19N, R5E</u>	State: <u>WA</u>
Landform (hillslope, terrace, etc) <u>Flood Plain</u> Slope (%) _____	Local relief (concave, convex, none) _____
Subregion (LRR) <u>A</u> Lat _____	Long _____ Datum _____
Soil Map Unit Name <u>Buckley loam</u>	NWI classification <u>upland forbs</u>
Are climatic/hydrologic conditions on the site typical for this time of year? <input type="checkbox"/> Yes <input type="checkbox"/> No	(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?	
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?	
(If needed, explain any answers in Remarks.)	

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

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soils Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Remarks:	

**VEGETATION - Use scientific names of plants.**

Tree Stratum (Plot size <u>10 M</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <u>Tuja plicata</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				
4. _____				Percent of Dominant Species that are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>20</u> = Total Cover.				
Sapling/Shrub Stratum (Plot size _____)				Prevalence Index Worksheet
1. _____				Total % Cover of _____ Multiply by
2. _____				
3. _____				OBL species _____ x1 = _____
4. _____				FACW species _____ x2 = _____
5. _____				FAC species _____ x3 = _____
_____ = Total Cover				FACU species _____ x4 = _____
				UPL species _____ x5 = _____
				Column totals (A) _____ (B) _____
Herb Stratum (Plot size <u>2 M</u> )				Prevalence Index = B / A = _____
1. <u>Schizanthus phoenix</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators</b> Dominance test is > 50% Prevalence test is ≤ 3.0* Morphological Adaptations* (provide supporting data in remarks or on a separate sheet) Wetland Non-Vascular Plants* Problematic Hydrophytic Vegetation* (explain)  * Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
2. <u>Poa sp.</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Cirsium arvens</u>	<u>Trace</u>	<u>N</u>	<u>FACU</u>	
4. <u>Agrostis sp.</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>130</u> = Total Cover				
Woody Vine Stratum (Plot size _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground In Herb Stratum <u>0</u>				
Remarks: <u>Hydrophytic vegetation is dominant.</u>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10 YR 3/3	100	—	—	—	—	loam	
10-18	7.5 YR 4/4	100	—	—	—	—	loam	

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

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

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

**Indicators for Problematic Hydric Soils<sup>a</sup>**

<input type="checkbox"/> 2cm Muck (A10)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Other (explain in remarks)

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

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present?      Yes       No

Remarks: No hydric soil indicators are present.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

*Secondary Indicators (2 or more required):*

<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 4B)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C8)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Frost-Heave Hummocks

**Field Observations**

Surface Water Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Depth (in):	—
Water Table Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Depth (in):	—
Saturation Present? (includes capillary fringe)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Depth (in):	—

Wetland Hydrology Present?      Yes       No

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

Remarks: No wetland hydrology indicators are present.

Project Site: <u>Fennel Creek Trail Mitigation</u>	Sampling Date: <u>12-15-09</u>
Applicant/Owner: <u>City of Bonney Lake</u>	Sampling Point: <u>4 M-SP7</u>
Investigator: <u>Eric Christensen, Claire Hoffman</u>	City/County: <u>Bonney Lake, Pierce</u>
Section, Township, Range: <u>Sec 4 T19N, R 5E</u>	State: <u>WA</u>
Landform (hillslope, terrace, etc) <u>Flood Plain</u> Slope (%) _____	Local relief (concave, convex, none) <u>None</u>
Subregion (LRR) <u>A</u> Lat _____	Long _____ Datum _____
Soil Map Unit Name <u>Buckley loam</u>	NWI classification <u>PEM</u>
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?	
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?	
(If needed, explain any answers in Remarks.)	

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

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this 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	
Remarks: <u>All three wetland parameters are satisfied.</u>	

**VEGETATION - Use scientific names of plants.**

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1.				Number of Dominant Species that are OBL, FACW, or FAC:	<u>3</u> (A)
2.				Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
3.				Percent of Dominant Species that are OBL, FACW, or FAC:	<u>100</u> (A/B)
4.					
_____ = Total Cover.					
Sapling/Shrub Stratum (Plot size _____)				Prevalence Index Worksheet	
1.				Total % Cover of	Multiply by
2.				OBL species	x 1 =
3.				FACW species	x 2 =
4.				FAC species	x 3 =
5.				FACU species	x 4 =
				UPL species	x 5 =
_____ = Total Cover				Column totals	(A) _____ (B) _____
Herb Stratum (Plot size <u>2M</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index = B / A =	
1. <u>Juncus effusus</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>		
2. <u>Schedonorus phoenix</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>		
3. <u>Gallium sp.</u>	<u>Trace</u>	<u>N</u>			
4. <u>Agrostis sp.</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>		
5.					
6.				Hydrophytic Vegetation Indicators	
7.				Dominance test is > 50%	
8.				Prevalence test is ≤ 3.0*	
9.				Morphological Adaptations* (provide supporting data in remarks or on a separate sheet)	
10.				Wetland Non-Vascular Plants*	
11.				Problematic Hydrophytic Vegetation* (explain)	
_____ = Total Cover				* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
Woody Vine Stratum (Plot size _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1.					
2.					
_____ = Total Cover					
% Bare Ground in Herb Stratum <u>0</u>					
Remarks: <u>Hydrophytic vegetation is dominant.</u>					

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-13	10 YR 2/1	100					loam	
13-18	10 YR 4/2	85	7.5 YR 5/6	15	C	M	Sandy gravelly loam	

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

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

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

Indicators for Problematic Hydric Soils<sup>a</sup>

- 20m Muok (A10)
- Red Parent Material (TF2)
- Other (explain in remarks)

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

Restrictive Layer (if present):

Type: \_\_\_\_\_

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

Hydric soil present?

Yes

No

Remarks: Soil is hydric.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required):

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

Field Observations

- Surface Water Present?  Yes  No Depth (in): \_\_\_\_\_
- Water Table Present?  Yes  No Depth (in): 11
- Saturation Present?  Yes  No Depth (in): 4

Wetland Hydrology Present?

Yes

No

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

Remarks: Wetland hydrology indicators are present.

Project Site: <u>Fennet Creek Mitigation</u>		Sampling Date: <u>12-15-09</u>
Applicant/Owner: <u>City of Bonner Lake</u>		Sampling Point: <u>W4-SP8</u>
Investigator: <u>Eric Christensen, Claire Hoffman</u>		City/County: <u>Bonner Lake, Pierce</u>
Section, Township, Range: <u>Sec 4, T19N, R5E</u>		State: <u>WA</u>
Landslope (hillslope, terrace, etc) <u>Flood Plain</u> Slope (%) _____		Local relief (concave, convex, none) <u>Convex</u>
Subregion (LRR) <u>A</u>	Lat _____	Long _____ Datum _____
Soil Map Unit Name: <u>Buckley loam</u>		NWI classification: <u>upland shrub</u>
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		

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

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks: <u>None of the three wetland parameters are satisfied. The sample plot is not located in a wetland.</u>	

**VEGETATION - Use scientific names of plants.**

Tree Stratum (Plot size <u>10M</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. <u>Alnus rubra</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	Number of Dominant Species that are OBL, FACW, or FAC:	<u>0</u> (A)
2.				Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
3.				Percent of Dominant Species that are OBL, FACW, or FAC:	<u>0</u> (A/B)
4.	<u>5</u> = Total Cover.				
Sapling/Shrub Stratum (Plot size _____)				Prevalence Index Worksheet	
1. <u>Cornus cornuta</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	Total % Cover of: <u>        </u> Multiply by	
2. <u>Spirea douglasii</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	OBL species	x 1 =
3.				FACW species	x 2 =
4.				FAC species	x 3 =
5.				FACU species	x 4 =
	<u>30</u> = Total Cover			UPL species	x 5 =
				Column totals	(A)      (B)
Herb Stratum (Plot size _____)				Prevalence Index = B / A =	
1. <u>Pteridium aquilinum</u>	<u>90</u>	<u>Y</u>	<u>FACU</u>		
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
	<u>90</u> = Total Cover				
Woody Vine Stratum (Plot size _____)				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
1. <u>Rubus armeniacus</u>	<u>60</u>	<u>Y</u>	<u>FACU</u>		
2. <u>Rubus laciniatus</u>	<u>10</u>	<u>N</u>	<u>FACU</u>		
	<u>70</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>					
Remarks: <u>Dominant vegetation is not hydrophytic.</u>					

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-11	10YR 2/2	100	—	—	—	—	gravelly loam	
11-13	5YR 3/3	100	—	—	—	—	Sandy loam with gravel	
13-18	10YR 5/3	100	—	—	—	—	silty loam	

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

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

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

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

- 20m Muck (A10)
- Red Parent Material (TF2)
- Other (explain in remarks)

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

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (Inches): \_\_\_\_\_

Hydric soil present? Yes  No

Remarks: No indicators of wetland hydrology are present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required):

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C8)
- Geomorphic Position (D2)
- Shallow Aquitard (D8)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks

Field Observations

- Surface Water Present?  Yes  No Depth (in): —
- Water Table Present?  Yes  No Depth (in): 16
- Saturation Present?  Yes  No Depth (in): —

Wetland Hydrology Present? Yes  No

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

Remarks: The water table was observed below 12 inches. Wetland hydrology criterion is not satisfied.

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

Project/Site: FENNEL CROSS TRAIL City/County: BOUNEY LAKE Sampling Date: 03-11-09  
 Applicant/Owner: BOUNEY LAKE State: WA Sampling Point: W1 - SP1  
 Investigator(s): ERIK CHRISTENSEN, COLIN WORSLEY Section, Township, Range: S4C4, T12N, R5E  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 1%  
 Subregion (LRR): A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: <u>WL is located in emergent area bounded by R. armeniacus to the S. + W., adjacent and immediately W. of Fennel Cr. SP is located N-central portion of WL ~ 10 ft E (SW) of</u>	

**VEGETATION – Use scientific names of plants. WL Plot W1-3,**

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67%</u> (A/B)
4. _____	_____	_____	_____	= Total Cover
Sapling/Shrub Stratum (Plot size: <u>10'</u> )				
1. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5'</u> )				<b>Hydrophytic Vegetation Indicators:</b> ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 <sup>1</sup> ___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Juncus effusus</u>	<u>75</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Scirpus microcapus</u>	<u>2</u>	_____	_____	
3. <u>Agrostis capillaris</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	
4. <u>Adiantum repens</u>	<u>2</u>	_____	_____	
5. <u>Poa spp (no inflorescence)</u>	<u>2</u>	_____	_____	
6. <u>Festuca rubra</u>	<u>2</u>	_____	_____	
7. <u>Veronica americana</u>	<u>2</u>	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
Woody Vine Stratum (Plot size: <u>10'</u> )				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. <u>Rubus armeniacus</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	= Total Cover
% Bare Ground in Herb Stratum _____				
Remarks:				

**SOIL**

Sampling Point: W1-SP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR <sup>2</sup> /2	100	-	-	-	-	loamy silt	
5-10	10YR <sup>3</sup> /2		-	-	-	-	sa. gr.	Organic streaking (black)
10+	-	-	-	-	-	-	sa. gr. cobbles	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input checked="" type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Hydric Soil Present? Yes  No

Remarks: Could not dig below 10".

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): -

Water Table Present? Yes  No  Depth (inches): Surface

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

Wetland Hydrology Present? Yes  No

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

Remarks: Standing water in micro depressions adjacent to plot. Approx. 15' W of Fernal Cr. (1-3")

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

Project/Site: FENNEL CREEK TRAIL City/County: BONANEY LAKE Sampling Date: 03-11-09  
 Applicant/Owner: BONANEY LAKE State: WA Sampling Point: W1-SP2  
 Investigator(s): ERIK CHRISTENSEN, CAIN WORSLEY Section, Township, Range: Sec 4, T14N, R5E  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope(%): 1  
 Subregion (LRR): A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>SP is located W of W1 + W. of Fennel Cr. on lower hillslope. approx 15' 210°(SW) of WL Flag W1-3.</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	
= Total Cover				
Shrub/Strat. (Plot size: <u>10'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Ahus rubra</u>	<u>20</u>	<u>YES</u>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
= Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Schedonorus phoenix</u>	<u>20</u>	_____	<u>FAC</u>	___ Dominance Test is >50%
2. <u>Agrostis capillaris</u>	<u>90</u>	_____	<u>FAC</u>	___ Prevalence Index is ≤3.0'
3. <u>Dactylis glomerata</u>	<u>2</u>	_____	_____	___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	_____	_____	___ Wetland Non-Vascular Plants <sup>1</sup>
5. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot size: <u>10'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. <u>Rubus armeniacus</u>	<u>15</u>	<u>YES</u>	<u>FACU</u>	Yes <input checked="" type="checkbox"/> No _____
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: _____				

**SOIL**

Sampling Point: W1-SP2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 7/2	100	-	-	-	-	loam	
6-20	7.5YR 4/4	90	5YR 5/6	10	C	M	gsi	minor inclusions of other matrices and charcoal

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Radox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks: *No hydric soil indicators present.*

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

**Secondary Indicators (2 or more required)**

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

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_ (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks: *No 1<sup>o</sup> or 2<sup>o</sup> indicators of WL hydro. present.*

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

Project/Site: FENNEL CREEK TRAIL City/County: BONNEY LAKE Sampling Date: 03-11-09  
 Applicant/Owner: BONNEY LAKE State: WA Sampling Point: WZ-SP1  
 Investigator(s): ERIK CHRISTENSEN, COLIN WORSLEY Section, Township, Range: Sec 4, T19N, R5E  
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal" Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: <u>SP is located S. of young ALRU stand in Floodplain of Fennel Cr. Apprx. 15' W(265°) of WL Flag WZ-2.</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Phalaris amabilis</u>	<u>100</u>	<u>X</u>	<u>FACW</u>	___ Dominance Test is >50%
2. _____	_____	_____	_____	___ Prevalence Index is ≤3.0 <sup>1</sup>
3. _____	_____	_____	_____	___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	_____	_____	___ Wetland Non-Vascular Plants <sup>1</sup>
5. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. <u>Rubus americanus</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	Yes <u>X</u> No _____
2. _____	_____	_____	_____	
<u>2</u> = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: <u>ALRU located N. of SP, outside WL boundary.</u>				

**SOIL**

Sampling Point: W2-SP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 4/2	100	-	-	-	-	si. lo am	
6-20	2.5Y 2.5/1	100	7.5YR 4/6	5	C	M	si. lo am	
20+							gsi	w/ cobbles

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): 14

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 7

Wetland Hydrology Present? Yes  No

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

Remarks:

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

Project/Site: FENNEY CREEK TRAIL City/County: BONNEY LAKE Sampling Date: 03-11-09  
 Applicant/Owner: BONNEY LAKE State: WA Sampling Point: FL-SP03  
 Investigator(s): ERIK CHRISTENSEN, COLIN WORSLAY Section, Township, Range: Sec 4, T19N, R5E WL-SP2  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No  Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No  (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>SP is located at NE side of WL 2, adjacent to old sediment fence and approx 20' N(350°) of WL flag WL-2.</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Alnus rubra</u>	<u>80</u>	<input checked="" type="checkbox"/>	<u>SAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
<u>80</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
6. _____				UPL species _____ x 5 = _____
_____ = Total Cover				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Equisetum hyemale</u>	<u>2</u>	<input type="checkbox"/>	<u>N</u>	<input type="checkbox"/> Dominance Test is >50%
2. <u>Schoenoplectus acutirostris</u>	<u>5</u>	<input type="checkbox"/>	<u>N</u>	<input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
3. <u>Agrostis capillaris</u>	<u>35</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				<input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup>
5. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>42</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. <u>Rubus armeniacus</u>	<u>5</u>	<input type="checkbox"/>	<u>N</u>	Yes <input checked="" type="checkbox"/> No _____
2. _____				
<u>5</u> = Total Cover				
% Bare Ground in Herb Stratum <u>60</u>				
Remarks: _____				

**SOIL**

Sampling Point: W2-GRP  
FL-SPO3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR <sup>2/2</sup>	100	-	-	-	-	loam	
6-15	10YR <sup>3/3</sup>	100	5YR <sup>4/6</sup>	20	C	M	gsi	
15-20	10YR <sup>3/3</sup>	100	5YR <sup>4/6</sup>	20	C	M	gsi	w / cobbles

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S8)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks: Charcoal in lower 2 layers. No hydric soil indicators present.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

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

Water Table Present? Yes X No \_\_\_\_\_ Depth (inches): 12

Saturation Present? Yes X No \_\_\_\_\_ Depth (inches): 6

(includes capillary fringe)

Wetland Hydrology Present? Yes X No \_\_\_\_\_

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

Remarks:

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

Project/Site: FENNEL CORNER TRAIL City/County: BOUNEY LAKE Sampling Date: 03-13-09  
 Applicant/Owner: BOUNEY LAKE State: WA Sampling Point: W3-SPI  
 Investigator(s): ERIK CHRISTENSEN, COLIN WORSLEY Section, Township, Range: Sec 4, T19N, R5E  
 Landform (hillslope, terrace, etc.): valley floor Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 2  
 Subregion (LRR): A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Remarks: <u>SP is located along NW edge of WL near V slope, approx 10' N (15°) from WL flag W3-7.</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u>	(A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u>	(B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u>	(A/B)
4. _____	_____	_____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	Total % Cover of: _____	Multiply by: _____
2. _____	_____	_____	_____	OBL species _____	x 1 = _____
3. _____	_____	_____	_____	FACW species _____	x 2 = _____
4. _____	_____	_____	_____	FAC species _____	x 3 = _____
5. _____	_____	_____	_____	FACU species _____	x 4 = _____
= Total Cover				UPL species _____	x 5 = _____
Herb Stratum (Plot size: <u>5'</u> )				Column Totals: _____	(A) _____ (B)
1. <u>Phacelia arvensis</u>	<u>100</u>	<u>YES</u>	<u>FACW</u>	Prevalence Index = B/A = _____	
2. _____	_____	_____	_____	Hydrophytic Vegetation Indicators:	
3. _____	_____	_____	_____	___ Dominance Test is >50%	
4. _____	_____	_____	_____	___ Prevalence Index is ≤3.0 <sup>1</sup>	
5. _____	_____	_____	_____	___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
6. _____	_____	_____	_____	___ Wetland Non-Vascular Plants <sup>1</sup>	
7. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
9. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
Woody Vine Stratum (Plot size: <u>10'</u> )				100 = Total Cover	
1. <u>Rubus arvensis</u>	<u>2</u>	<u>NO</u>	_____		
2. _____	_____	_____	_____		
= Total Cover					
% Bare Ground in Herb Stratum <u>0%</u>					
Remarks:					

**SOIL**

Sampling Point: W3-SP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10YR 2/2	100	-	-	-	-	silt	
9-20	10YR 2/1	100	-	-	-	-	sil loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input checked="" type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): 2

Water Table Present? Yes  No  Depth (inches): NA

Saturation Present? Yes  No  Depth (inches): surface

Wetland Hydrology Present? Yes  No

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

Remarks:

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

Project/Site: FENNELL CREEK TRAIL City/County: BONNEY LAKE Sampling Date: 03-13-09  
 Applicant/Owner: BONNEY LAKE State: WA Sampling Point: W3-SP2  
 Investigator(s): ERIK CHRISTENSEN, COLIN WORSLEY Section, Township, Range: Sec 4, T17N, R5E  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): concave Slope (%): 4  
 Subregion (LRR): A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No  Are "Normal" Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>SP is located NW of WL 3 on hillslope, approx. 15' E(115°) of WL Plot W3-7.</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Ornithoglossum</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	<input type="checkbox"/> Dominance Test is >50%
2. <u>Galium aparine</u>	<u>2</u>	<u>N</u>		<input type="checkbox"/> Prevalence Index is <=3.0 <sup>1</sup>
3. <u>Agrostis capillaris</u>	<u>15</u>	<u>N</u>		<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. <u>Schoenoplectus arundinacea</u>	<u>2</u>	<u>N</u>		<input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup>
5. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>10'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. <u>Rubus armeniacus</u>	<u>60</u>	<u>Y</u>	<u>FACU</u>	Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
<u>60</u> = Total Cover				
% Bare Ground in Herb Stratum <u>2</u>				
Remarks: <u>mass covers approx. 40% of ground</u>				

**SOIL**

Sampling Point: W13-SP2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 2/2	100	—	—	—	—	loam	cobbles throughout profile w/ some gravel

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks: No hydric soil indicators are present.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

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

Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

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

Remarks: No 1° or 2° indicators of WL hydro. present

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

Project/Site: Fennel Creek City/County: Bonney Lake Sampling Date: 3-13-09  
 Applicant/Owner: City of Bonney Lake State: WA Sampling Point: W3-SP3  
 Investigator(s): E. Christensen, C. Wesley Section, Township, Range: Sec 4, T19N, R5E  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): ~2%  
 Subregion (LRR): A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (if no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>SP is located in the forested component of the wetland adjacent to Fennel Creek.</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Thuja plicata</u>	<u>80%</u>	<u>Y</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. <u>Alnus rubra</u>	<u>15%</u>	<u>N</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
= Total Cover				
_____				
_____				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b> ___ Dominance Test is >50% ___ Prevalence Index is >3.0 <sup>1</sup> ___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Rubus spectabilis</u>	<u>15%</u>	<u>N</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
= Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
_____				
_____				
_____				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	% Bare Ground in Herb Stratum <u>75%</u>
1. <u>Athyrium filix-femina</u>	<u>20%</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Polygonatum minimum</u>	<u>2%</u>	<u>N</u>	_____	
3. <u>Cardamine oligosperma</u>	<u>~1%</u>	<u>N</u>	_____	
4. <u>Rumex sp.?</u>	<u>&lt;1%</u>	<u>N</u>	_____	Remarks: <u>Hydrophytic vegetation is dominant.</u>
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
= Total Cover				_____
_____				_____
_____				_____
_____				_____
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	_____
1. <u>Rubus acuminatus</u>	<u>70%</u>	<u>Y</u>	<u>FACU</u>	_____
2. _____	_____	_____	_____	_____
= Total Cover				_____
_____				_____

**SOIL**

Sampling Point: \_\_\_\_\_

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1							Duff	
0-7	10YR 7/2	100					Silt	
7-17	10YR 8/1	100					Loam	Abundant Partially decomposed organics
17-20	10YR 8/1	100					Gr Silt	w/ cobbles

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

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

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): 7

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 20

**Wetland Hydrology Present?** Yes  No

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

Remarks:

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

Project/Site: FENNA CREEK TRAIL City/County: BONNEY LAKE Sampling Date: 03-13-09  
 Applicant/Owner: BONNEY LAKE State: WA Sampling Point: CM-SP1  
 Investigator(s): E. CHRISTENSEN, C WORSELEY Section, Township, Range: S24N, T19N, R5E  
 Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? NO (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No _____	Is the Sampled Area within a Wetland?      Yes _____ No _____
Hydric Soil Present?	Yes _____ No _____	
Wetland Hydrology Present?	Yes _____ No _____	
Remarks: <u>SP is located ~20' 140° (SE) of wood stairs from adj. residential yard in Crystal Meadows. Located in a maintained lawn area, soils likely disturbed during construction</u>		

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: _____ (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10'</u> )				<b>Prevalence Index worksheet:</b>
1. <u>ornamental willow</u>	<u>2</u>	<u>N</u>		Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____		OBL species _____ x 1 = _____
3. _____	_____	_____		FACW species _____ x 2 = _____
4. _____	_____	_____		FAC species _____ x 3 = _____
5. _____	_____	_____		FAGU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>5'</u> )				<b>Hydrophytic Vegetation Indicators:</b>
1. <u>maintained lawn</u>	<u>100</u>	<u>Y</u>		___ Dominance Test is >50%
2. _____	_____	_____		___ Prevalence Index is ≤3.0 <sup>1</sup>
3. _____	_____	_____		___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	_____		___ Wetland Non-Vascular Plants <sup>1</sup>
5. _____	_____	_____		___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____	_____	_____		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	_____	_____		
8. _____	_____	_____		
9. _____	_____	_____		
10. _____	_____	_____		
11. _____	_____	_____		
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>10'</u> )				<b>Hydrophytic Vegetation Present?</b> Yes _____ No _____
1. <u>Rubus armeniacus (at edge of lawn)</u>	<u>5</u>			
2. _____	_____	_____		
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: _____				

**SOIL**

Sampling Point: CM-SP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR 2/1	100	-	-	-	-	loam	some gravel
7-20	2.5Y 5/1	100	5YR 5/6 +	15	C	M	gsi	
"	"	"	7.5YR 5/6	30	C	M	"	

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

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Hydric Soil Present? Yes \_\_\_\_\_ No \_\_\_\_\_

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): 13

Saturation Present? (includes capillary fringe) Yes  No \_\_\_\_\_ Depth (inches): 10

Wetland Hydrology Present? Yes  No \_\_\_\_\_

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

Remarks: Small pockets of inundation in lawn near plot.

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

Project/Site: Fennel Creek trail City/County: Bonney Lake Sampling Date: 3-11-09  
 Applicant/Owner: Bonney Lake State: WA Sampling Point: EC-SP02  
 Investigator(s): E. Christensen, J. Worsley Section, Township, Range: Spc 4, T19N, R5E  
 Landform (hillslope, terrace, etc.): Flats/terrace Local relief (concave, convex, none): None Slope (%): NA  
 Subregion (LRR): A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: _____	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				<b>Prevalence Index worksheet:</b>
1. <u>Rubus spectabilis</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
= Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>
1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>Y</u>	<u>FACU</u>	____ Dominance Test is >50%
2. _____	_____	_____	_____	____ Prevalence Index is ≤3.0 <sup>1</sup>
3. _____	_____	_____	_____	____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	_____	_____	____ Wetland Non-Vascular Plants <sup>1</sup>
5. _____	_____	_____	_____	____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
1. <u>Rubus armeniacus</u>	<u>35</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>NA</u>				
Remarks: <u>only 50% of dominant vegetation is hydrophytic.</u>				

**SOIL**

Sampling Point: \_\_\_\_\_

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 2/2	100					Silo	
12-30	5Y 2-3/1	85	7.5YR 3/3	15	C	M	Silo	Concretions

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

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

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

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes \_\_\_\_\_ No

Remarks: Redox concretion in lower horizon. Charcoal throughout profile

**HYDROLOGY**

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

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No \_\_\_\_\_ Depth (inches): 13

**Wetland Hydrology Present?** Yes \_\_\_\_\_ No

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

Remarks: No indicators of wetland hydrology are present.

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

Project/Site: Fennel Creek Trail City/County: BONNEY LAKE Sampling Date: 03-11-09  
 Applicant/Owner: BONNEY LAKE State: WA Sampling Point: FC-SP-U  
 Investigator(s): ERIK CHRISTENSEN, GAIL WORSLEY Section, Township, Range: Sec 4, T19N, R5E  
 Landform (hillslope, terrace, etc.): floodplain terrace Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>(Refer to aerial map for location. description based on st) SP is located ~ 10' W of Fennel Cr. in Physocarpus capitatus patch adjacent to large Rubus armeniacus thicket</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	
= Total Cover				
<b>Sapling/Shrub Stratum (Plot size: <u>10'</u>)</b>				
1. <u>Physocarpus capitatus</u>	<u>40</u>	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
<b>Herb Stratum (Plot size: <u>5'</u>)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0' ___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
= Total Cover				
<b>Woody Vine Stratum (Plot size: <u>10'</u>)</b>				
1. <u>Rubus armeniacus</u>	<u>80</u>	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
<u>80</u> = Total Cover				
<b>% Bare Ground in Herb Stratum <u>No herb stratum</u></b>				
Remarks: <u>Sample plot ends at Fennel Cr. Fraxinus latifolia and Populus balsamifera located across stream. Only 50% of dominant vegetation is hydrophytic.</u>				

**SOIL**

Sampling Point: FC-SP01

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	-	-	-	-	-	-	duff	
1-8	10YR 2/2	100	-	-	-	-	loam	
8-20	7.5YR 3/3	100	-	-	-	-	sa. loam	
20+	-	-	-	-	-	-	gravel	mixed layer immediately above

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

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

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

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

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

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

Restrictive Layer (if present):

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

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks: No hydric soil indicators present.

**HYDROLOGY**

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks: No 1° or 2° indicators of WL hydro present.

**APPENDIX B**  
**Wetland Rating Forms**



Wetland name or number 1

**WETLAND RATING FORM – WESTERN WASHINGTON**  
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users  
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland 1 Date of site visit: 3-11-09

Rated by Erik Christensen Trained by Ecology? Yes  No  Date of training 4-09

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

Map of wetland unit: Figure  Estimated size

### SUMMARY OF RATING

#### Category based on FUNCTIONS provided by wetland

I  II  III  IV

Category I = Score $\geq 70$
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score $< 30$

Score for Water Quality Functions

12

Score for Hydrologic Functions

4

Score for Habitat Functions

17

TOTAL score for Functions

33

#### Category based on SPECIAL CHARACTERISTICS of wetland

I  II  Does not Apply

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

III

#### Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics	Wetland HGM Class used for Rating	
Estuarine	Depressional	
Natural Heritage Wetland	Riverine	<input checked="" type="checkbox"/>
Bog	Lake-fringe	
Mature Forest	Slope	
Old Growth Forest	Flats	
Coastal Lagoon	Freshwater Tidal	
Interdunal		
None of the above	Check if unit has multiple HGM classes present	<input type="checkbox"/>

Wetland name or number \_\_\_\_\_

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

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

<b>Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)</b>	<b>YES</b>	<b>NO</b>
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered <b>animal or plant</b> 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 <b>animal</b> 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. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

## Classification of Wetland Units in Western Washington

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

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

NO - go to 2                      YES - the wetland class is **Tidal Fringe**

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

NO - go to 3                      YES - The wetland class is **Flats**

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

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

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

At least 30% of the open water area is deeper than 6.6 ft (2 m)?

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

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

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

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

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

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

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

Wetland name or number \_\_\_\_\_

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

The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

The overbank flooding occurs at least once every two years.

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

NO - go to 6       **YES** - The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO - go to 7      **YES** - The wetland class is **Depressional**

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

NO - go to 8      **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM 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.

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

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

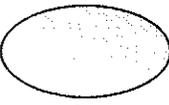
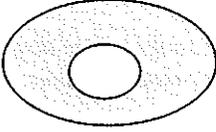
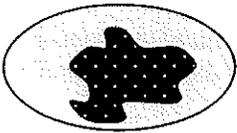
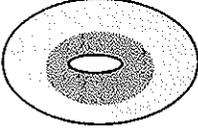
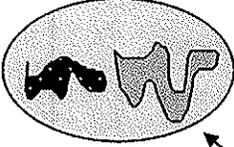
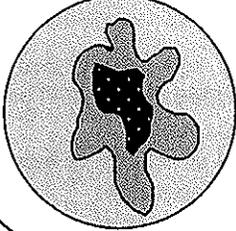
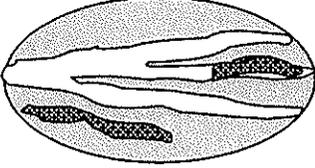


<b>R Riverine and Freshwater Tidal Fringe Wetlands</b>		<b>Points</b> (only 1 score per box)
<b>HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion</b>		
	<b>R 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?</b>	<i>(see p.54)</i>
<b>R</b>	<p>R 3.1 Characteristics of the overbank storage the unit provides:  <i>Estimate the average width of the wetland unit perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: ( average width of unit)/( average width of stream between banks).</i>                      If the ratio is more than 20 points = 9                      If the ratio is between 10 – 20 points = 6                      If the ratio is 5 - &lt;10 points = 4                      If the ratio is 1 - &lt;5 points = 2                      If the ratio is &lt; 1 points = 1</p> <p style="text-align: right;">Aerial photo or map showing average widths</p>	Figure <u>    </u>  2
<b>R</b>	<p>R 3.2 Characteristics of vegetation that slow down water velocities during floods: <i>Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description.</i> (polygons need to have &gt;90% cover at person height NOT Cowardin classes):                      Forest or shrub for &gt;1/3 area OR herbaceous plants &gt; 2/3 area points = 7                      Forest or shrub for &gt; 1/10 area OR herbaceous plants &gt; 1/3 area points = 4                      Vegetation does not meet above criteria points = 0</p> <p style="text-align: right;">Aerial photo or map showing polygons of different vegetation types</p>	Figure <u>    </u>  0
<b>R</b>	<i>Add the points in the boxes above</i>	2
<b>R</b>	<p><b>R 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion?</b>                      Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. <i>Note which of the following conditions apply.</i>  <input checked="" type="checkbox"/> There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding.  <input checked="" type="checkbox"/> There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding                      — Other _____</p> <p><i>(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)</i>                      YES multiplier is 2      NO multiplier is 1</p>	<i>(see p.57)</i>     multiplier  2
<b>R</b>	<p style="text-align: center;"><b>TOTAL - Hydrologic Functions</b> Multiply the score from R 3 by R 4  <i>Add score to table on p. 1</i></p>	4

Comments

<b>These questions apply to wetlands of all HGM classes.</b>		<b>Points</b> (only 1 score per box)																							
<b>HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat</b>																									
<b>H 1. Does the wetland unit have the potential to provide habitat for many species?</b>																									
<p><b>H 1.1 <u>Vegetation structure</u> (see p. 72)</b>            Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</p> <p> <input type="checkbox"/> Aquatic bed  <input checked="" type="checkbox"/> Emergent plants  <input type="checkbox"/> Scrub/shrub (areas where shrubs have &gt;30% cover)  <input type="checkbox"/> Forested (areas where trees have &gt;30% cover)            If the unit has a forested class check if:  <input type="checkbox"/> The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon            Add the number of vegetation structures that qualify. If you have:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"></td> <td style="text-align: right;">4 structures or more</td> <td style="text-align: right;">points = 4</td> </tr> <tr> <td>Map of Cowardin vegetation classes</td> <td style="text-align: right;">3 structures</td> <td style="text-align: right;">points = 2</td> </tr> <tr> <td></td> <td style="text-align: right;">2 structures</td> <td style="text-align: right;">points = 1</td> </tr> <tr> <td></td> <td style="text-align: right;">1 structure</td> <td style="text-align: right;">points = 0</td> </tr> </table>		4 structures or more	points = 4	Map of Cowardin vegetation classes	3 structures	points = 2		2 structures	points = 1		1 structure	points = 0	<p><b>Figure</b> _____</p> <p style="text-align: center; font-size: 2em;">0</p>												
	4 structures or more	points = 4																							
Map of Cowardin vegetation classes	3 structures	points = 2																							
	2 structures	points = 1																							
	1 structure	points = 0																							
<p><b>H 1.2. <u>Hydroperiods</u> (see p. 73)</b>            Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><input type="checkbox"/> Permanently flooded or inundated</td> <td style="width: 20%; text-align: right;">4 or more types present</td> <td style="width: 30%; text-align: right;">points = 3</td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flooded or inundated</td> <td style="text-align: right;">3 types present</td> <td style="text-align: right;">points = 2</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td style="text-align: right;">2 types present</td> <td style="text-align: right;">point = 1</td> </tr> <tr> <td><input type="checkbox"/> Saturated only</td> <td style="text-align: right;">1 type present</td> <td style="text-align: right;">points = 0</td> </tr> <tr> <td><input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> <b>Lake-fringe wetland = 2 points</b></td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> <b>Freshwater tidal wetland = 2 points</b></td> <td></td> <td></td> </tr> </table> <p style="text-align: right;">Map of hydroperiods</p>	<input type="checkbox"/> Permanently flooded or inundated	4 or more types present	points = 3	<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 types present	points = 2	<input type="checkbox"/> Occasionally flooded or inundated	2 types present	point = 1	<input type="checkbox"/> Saturated only	1 type present	points = 0	<input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland			<input type="checkbox"/> <b>Lake-fringe wetland = 2 points</b>			<input type="checkbox"/> <b>Freshwater tidal wetland = 2 points</b>			<p><b>Figure</b> _____</p> <p style="text-align: center; font-size: 2em;">1</p>
<input type="checkbox"/> Permanently flooded or inundated	4 or more types present	points = 3																							
<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 types present	points = 2																							
<input type="checkbox"/> Occasionally flooded or inundated	2 types present	point = 1																							
<input type="checkbox"/> Saturated only	1 type present	points = 0																							
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<input type="checkbox"/> <b>Lake-fringe wetland = 2 points</b>																									
<input type="checkbox"/> <b>Freshwater tidal wetland = 2 points</b>																									
<p><b>H 1.3. <u>Richness of Plant Species</u> (see p. 75)</b>            Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. (different patches of the same species can be combined to meet the size threshold)            You do not have to name the species.            Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle</p> <p style="text-align: center;">If you counted:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"></td> <td style="width: 20%; text-align: right;">&gt; 19 species</td> <td style="width: 30%; text-align: right;">points = 2</td> </tr> <tr> <td>List species below if you want to:</td> <td style="text-align: right;">5 - 19 species</td> <td style="text-align: right;">points = 1</td> </tr> <tr> <td></td> <td style="text-align: right;">&lt; 5 species</td> <td style="text-align: right;">points = 0</td> </tr> </table>		> 19 species	points = 2	List species below if you want to:	5 - 19 species	points = 1		< 5 species	points = 0	<p><b>Figure</b> _____</p> <p style="text-align: center; font-size: 2em;">1</p>															
	> 19 species	points = 2																							
List species below if you want to:	5 - 19 species	points = 1																							
	< 5 species	points = 0																							

Total for page   2

<p><b>H 1.4. Interspersion of habitats (see p. 76)</b>                  Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated 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-end;"> <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;">  </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-top: 20px;"> <div style="text-align: center;">                       High = 3 points                 </div> <div style="text-align: center;">                       High = 3 points                 </div> <div style="text-align: center;">                       [riparian braided channels]                 </div> </div> <p>NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes</p>	<p>Figure _____</p>	
<p><b>H 1.5. Special Habitat Features: (see p. 77)</b>                  Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.</p> <p><input type="checkbox"/> Large, downed, woody debris within the wetland (&gt;4in. diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 inches) in the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt;30degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown)</p> <p><input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (structures for egg-laying by amphibians)</p> <p><input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants</p> <p>NOTE: The 20% stated in early printings of the manual on page 78 is an error.</p>	<p style="text-align: center;">1</p>	
<p><b>H 1. TOTAL Score - potential for providing habitat</b>                  Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>		<p style="font-size: 2em;">3</p>

Comments

<p><b>H 2. Does the wetland unit have the opportunity to provide habitat for many species?</b></p>	<p>Figure <u>    </u></p>
<p><b>H 2.1 Buffers</b> (see p. 80)  <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."</i></p> <ul style="list-style-type: none"> <li>— 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) <b>Points = 5</b></li> <li>— 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 50% circumference. <b>Points = 4</b></li> <li>— 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference. <b>Points = 4</b></li> <li>— 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;25% circumference, . <b>Points = 3</b></li> <li>— 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt; 50% circumference. <b>Points = 3</b></li> </ul> <p style="text-align: center;"><b>If buffer does not meet any of the criteria above</b></p> <ul style="list-style-type: none"> <li>— No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland &gt; 95% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></li> <li>— No paved areas or buildings within 50m of wetland for &gt;50% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></li> <li>— Heavy grazing in buffer. <b>Points = 1</b></li> <li>— Vegetated buffers are &lt;2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) <b>Points = 0.</b></li> <li>— Buffer does not meet any of the criteria above. <b>Points = 1</b></li> </ul> <p style="text-align: center;">Aerial photo showing buffers</p>	<p style="text-align: center;">4</p>
<p><b>H 2.2 Corridors and Connections</b> (see p. 81)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p style="text-align: center;">YES = 4 points (go to H 2.3)                      NO = go to H 2.2.2</p> <p>H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? <b>OR</b> a <b>Lake-fringe</b> wetland, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;">YES = 2 points (go to H 2.3)                      NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <ul style="list-style-type: none"> <li>within 5 mi (8km) of a brackish or salt water estuary OR</li> <li>within 3 mi of a large field or pasture (&gt;40 acres) OR</li> <li>within 1 mi of a lake greater than 20 acres?</li> </ul> <p style="text-align: center;">YES = 1 point    NO = 0 points</p>	<p style="text-align: center;">2</p>

Total for page 6

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report <http://wdfw.wa.gov/hab/phslist.htm> )

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

**Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).

**Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).

**Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

**Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).

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

**Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).

**Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

**Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A*).

**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

**Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats = **4 points**  
If wetland has **2** priority habitats = **3 points**  
If wetland has **1** priority habitat = **1 point**                      No habitats = 0 points

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

3

Wetland name or number V

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





<p><b>SC 4.0 Forested Wetlands (see p. 90)</b>                  Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> <li>— <b>Old-growth forests:</b> (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</li> </ul> <p>NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <ul style="list-style-type: none"> <li>— <b>Mature forests:</b> (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</li> </ul> <p>YES = Category I      <input checked="" type="radio"/> NO not a forested wetland with special characteristics</p>	<p><b>Cat. I</b></p>
<p><b>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</b>                  Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> <li>— The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</li> <li>— The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</li> </ul> <p>YES = Go to SC 5.1      <input checked="" type="radio"/> NO not a wetland in a coastal lagoon</p> <p><b>SC 5.1</b> Does the wetland meets all of the following three conditions?</p> <ul style="list-style-type: none"> <li>— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).</li> <li>— At least ¼ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</li> <li>— The wetland is larger than 1/10 acre (4350 square feet)</li> </ul> <p>YES = Category I      NO = Category II</p>	<p><b>Cat. I</b></p> <p><b>Cat. II</b></p>

Wetland name or number   \  

<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b> Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES - go to SC 6.1      <u>NO</u> not an interdunal wetland for rating <i>If you answer yes you will still need to rate the wetland based on its functions.</i> In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"><li>• Long Beach Peninsula- lands west of SR 103</li><li>• Grayland-Westport- lands west of SR 105</li><li>• Ocean Shores-Copalis- lands west of SR 115 and SR 109</li></ul> <p>SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger? YES = Category II      NO – go to SC 6.2</p> <p>SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III</p>	<p><b>Cat. II</b></p> <p><b>Cat. III</b></p>
<p><b>Category of wetland based on Special Characteristics</b> <i>Choose the "highest" rating if wetland falls into several categories, and record on p. 1.</i> If you answered NO for all types enter "Not Applicable" on p.1</p>	



Wetland name or number 2

**WETLAND RATING FORM – WESTERN WASHINGTON**  
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users  
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): 2 Date of site visit: 3-11-09

Rated by Eric Christensen Trained by Ecology? Yes  No  Date of training 4-09

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

Map of wetland unit: Figure  Estimated size

**SUMMARY OF RATING**

Category based on FUNCTIONS provided by wetland

I  II  III  IV

Category I = Score  $\geq 70$   
Category II = Score 51-69  
Category III = Score 30-50  
Category IV = Score  $< 30$

Score for Water Quality Functions	16
Score for Hydrologic Functions	4
Score for Habitat Functions	15
<b>TOTAL score for Functions</b>	<b>35</b>

Category based on SPECIAL CHARACTERISTICS of wetland

I  II  Does not Apply

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

**III**

**Summary of basic information about the wetland unit**

Wetland Unit has Special Characteristics	Wetland HGM Class used for Rating	
Estuarine	Depressional	
Natural Heritage Wetland	Riverine	<input checked="" type="checkbox"/>
Bog	Lake-fringe	
Mature Forest	Slope	
Old Growth Forest	Flats	
Coastal Lagoon	Freshwater Tidal	
Interdunal		
None of the above	<input checked="" type="checkbox"/> Check if unit has multiple HGM classes present	<input type="checkbox"/>

Wetland name or number \_\_\_\_\_

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

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

<b>Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)</b>	<b>YES</b>	<b>NO</b>
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered <b>animal or plant</b> 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 <b>animal</b> 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. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number 2

## Classification of Wetland Units in Western Washington

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

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

NO - go to 2

YES - the wetland class is **Tidal Fringe**

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

NO - go to 3

YES - The wetland class is **Flats**

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

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

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

At least 30% of the open water area is deeper than 6.6 ft (2 m)?

NO - go to 4

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

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

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

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

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

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

NO - go to 5

YES - The wetland class is **Slope**

Wetland name or number .....

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

\_\_\_\_\_ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

\_\_\_\_\_ The overbank flooding occurs at least once every two years.

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

NO - go to 6      **YES** - The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO - go to 7      **YES** - The wetland class is **Depressional**

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

NO - go to 8      **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM 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.**

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

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



Wetland name or number \_\_\_\_\_

<b>R Riverine and Freshwater Tidal Fringe Wetlands</b>		<b>Points</b> (only 1 score per box)
<b>HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion</b>		
	<b>R 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?</b>	(see p.54)
<b>R</b>	<p>R 3.1 Characteristics of the overbank storage the unit provides:  <i>Estimate the average width of the wetland unit perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit)/(average width of stream between banks).</i></p> <p>If the ratio is more than 20 points = 9            If the ratio is between 10 - 20 points = 6            If the ratio is 5 - &lt;10 points = 4            If the ratio is 1 - &lt;5 points = <u>2</u>            If the ratio is &lt; 1 points = 1</p> <p>Aerial photo or map showing average widths</p>	Figure <u>2</u>
<b>R</b>	<p>R 3.2 Characteristics of vegetation that slow down water velocities during floods: <i>Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description.</i> (polygons need to have &gt;90% cover at person height NOT Cowardin classes):</p> <p>Forest or shrub for &gt;1/3 area OR herbaceous plants &gt; 2/3 area points = 7            Forest or shrub for &gt; 1/10 area OR herbaceous plants &gt; 1/3 area points = 4            Vegetation does not meet above criteria points = <u>0</u></p> <p>Aerial photo or map showing polygons of different vegetation types</p>	Figure <u>∅</u>
<b>R</b>	<i>Add the points in the boxes above</i>	<u>2</u>
<b>R</b>	<p><b>R 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion?</b>            Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. <i>Note which of the following conditions apply.</i></p> <p><input checked="" type="checkbox"/> There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding.  <input checked="" type="checkbox"/> There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding            — Other _____</p> <p>(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)  <b>YES multiplier is 2 NO multiplier is 1</b></p>	(see p.57)       multiplier <u>2</u>
<b>R</b>	<p><b>TOTAL - Hydrologic Functions</b> Multiply the score from R 3 by R 4  <i>Add score to table on p. 1</i></p>	<u>4</u>

Comments

Wetland name or number 2

<b>These questions apply to wetlands of all HGM classes.</b>		<b>Points</b> (only 1 score per box)											
<b>HABITAT FUNCTIONS</b> - Indicators that unit functions to provide important habitat													
<b>H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?</b>													
<p><b>H 1.1. <u>Vegetation structure</u> (see p. 72)</b>            Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</p> <p><input type="checkbox"/> Aquatic bed  <input checked="" type="checkbox"/> Emergent plants  <input type="checkbox"/> Scrub/shrub (areas where shrubs have &gt;30% cover)  <input type="checkbox"/> Forested (areas where trees have &gt;30% cover)</p> <p><i>If the unit has a forested class check if:</i>  <input type="checkbox"/> The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon</p> <p><i>Add the number of vegetation structures that qualify. If you have:</i></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"></td> <td style="width: 25%;">4 structures or more</td> <td style="width: 25%;">points = 4</td> </tr> <tr> <td></td> <td>3 structures</td> <td>points = 2</td> </tr> <tr> <td></td> <td>2 structures</td> <td>points = 1</td> </tr> <tr> <td></td> <td><u>1</u> structure</td> <td>points = 0</td> </tr> </table> <p>Map of Cowardin vegetation classes</p>		4 structures or more	points = 4		3 structures	points = 2		2 structures	points = 1		<u>1</u> structure	points = 0	<p><b>Figure</b> _____</p> <p style="text-align: center; font-size: 2em;">Ø</p>
	4 structures or more	points = 4											
	3 structures	points = 2											
	2 structures	points = 1											
	<u>1</u> structure	points = 0											
<p><b>H 1.2. <u>Hydroperiods</u> (see p. 73)</b>            Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><input type="checkbox"/> Permanently flooded or inundated</td> <td style="width: 25%;">4 or more types present</td> <td style="width: 25%;">points = 3</td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flooded or inundated</td> <td>3 types present</td> <td>points = 2</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td><u>2</u> types present</td> <td>point = 1</td> </tr> <tr> <td><input type="checkbox"/> Saturated only</td> <td>1 type present</td> <td>points = 0</td> </tr> </table> <p><input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland  <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</p> <p><input type="checkbox"/> <b>Lake-fringe wetland = 2 points</b>  <input type="checkbox"/> <b>Freshwater tidal wetland = 2 points</b></p> <p style="text-align: right;">Map of hydroperiods</p>	<input type="checkbox"/> Permanently flooded or inundated	4 or more types present	points = 3	<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 types present	points = 2	<input type="checkbox"/> Occasionally flooded or inundated	<u>2</u> types present	point = 1	<input type="checkbox"/> Saturated only	1 type present	points = 0	<p><b>Figure</b> _____</p> <p style="text-align: center; font-size: 2em;">\</p>
<input type="checkbox"/> Permanently flooded or inundated	4 or more types present	points = 3											
<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 types present	points = 2											
<input type="checkbox"/> Occasionally flooded or inundated	<u>2</u> types present	point = 1											
<input type="checkbox"/> Saturated only	1 type present	points = 0											
<p><b>H 1.3. <u>Richness of Plant Species</u> (see p. 75)</b>            Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. (different patches of the same species can be combined to meet the size threshold)            You do not have to name the species.            Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle</p> <p style="text-align: center;">If you counted:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"></td> <td style="width: 25%;">&gt; 19 species</td> <td style="width: 25%;">points = 2</td> </tr> <tr> <td></td> <td>5 - 19 species</td> <td>points = 1</td> </tr> <tr> <td></td> <td><u>&lt; 5</u> species</td> <td>points = 0</td> </tr> </table> <p>List species below if you want to:</p>		> 19 species	points = 2		5 - 19 species	points = 1		<u>&lt; 5</u> species	points = 0	<p><b>Figure</b> _____</p> <p style="text-align: center; font-size: 2em;">Ø</p>			
	> 19 species	points = 2											
	5 - 19 species	points = 1											
	<u>&lt; 5</u> species	points = 0											

Total for page Ø

Wetland name or number \_\_\_\_\_

<p><b>H 1.4. Interspersion of habitats (see p. 76)</b> Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated 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 channels]</p> <p>NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes</p>	<p>Figure _____</p> <p style="text-align: center;">Ø</p>
<p><b>H 1.5. Special Habitat Features: (see p. 77)</b> Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.</p> <p>___ Large, downed, woody debris within the wetland (&gt;4in. diameter and 6 ft long).</p> <p>___ Standing snags (diameter at the bottom &gt; 4 inches) in the wetland</p> <p>___ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)</p> <p>___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt;30degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown)</p> <p>___ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (structures for egg-laying by amphibians)</p> <p>___ Invasive plants cover less than 25% of the wetland area in each stratum of plants</p> <p>NOTE: The 20% stated in early printings of the manual on page 78 is an error.</p>	<p style="text-align: center;">Ø</p>
<p><b>H 1. TOTAL</b> Score - potential for providing habitat Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>	

Comments

<p><b>H 2. Does the wetland unit have the opportunity to provide habitat for many species?</b></p> <p><b>H 2.1 Buffers (see p. 80)</b>  <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."</i></p> <ul style="list-style-type: none"> <li>— 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) <b>Points = 5</b></li> <li>— 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 50% circumference. <b>Points = 4</b></li> <li><input checked="" type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference. <b>Points = 4</b></li> <li>— 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 25% circumference. <b>Points = 3</b></li> <li>— 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt; 50% circumference. <b>Points = 3</b></li> </ul> <p style="text-align: center;"><b>If buffer does not meet any of the criteria above</b></p> <ul style="list-style-type: none"> <li>— No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland &gt; 95% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></li> <li>— No paved areas or buildings within 50m of wetland for &gt;50% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></li> <li>— Heavy grazing in buffer. <b>Points = 1</b></li> <li>— Vegetated buffers are &lt;2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) <b>Points = 0.</b></li> <li>— Buffer does not meet any of the criteria above. <b>Points = 1</b></li> </ul> <p style="text-align: center;">Aerial photo showing buffers</p>	<p>Figure <u>    </u></p> <p style="text-align: center; font-size: 2em;">4</p>
<p><b>H 2.2 Corridors and Connections (see p. 81)</b></p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p style="text-align: center;">YES = 4 points (go to H 2.3)                      NO = go to H 2.2.2</p> <p>H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? <b>OR</b> a <b>Lake-fringe</b> wetland, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;"><input checked="" type="checkbox"/> YES = 2 points (go to H 2.3)                      NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <ul style="list-style-type: none"> <li>within 5 mi (8km) of a brackish or salt water estuary OR</li> <li>within 3 mi of a large field or pasture (&gt;40 acres) OR</li> <li>within 1 mi of a lake greater than 20 acres?</li> </ul> <p style="text-align: center;">YES = 1 point    NO = 0 points</p>	<p style="text-align: center; font-size: 2em;">2</p>

Total for page   6

Wetland name or number \_\_\_\_\_

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report <http://wdfw.wa.gov/hab/phslist.htm> )

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

- Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
- Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
- Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
- Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
- Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A*).
- Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point**

No habitats = 0 points

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

3

Wetland name or number 2

<p>H 2.4 <u>Wetland Landscape</u> (choose the <i>one</i> description of the landscape around the wetland that best fits) (see p. 84)</p> <p>There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5</p> <p>The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5</p> <p>There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3</p> <p>The wetland is Lake-fringe on a lake <b>with</b> disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3</p> <p>There is at least 1 wetland within ½ mile. points = 2</p> <p>There are no wetlands within ½ mile. points = 0</p>	5
<p><b>H 2. TOTAL Score - opportunity for providing habitat</b> Add the scores from H2.1, H2.2, H2.3, H2.4</p>	14
<p>TOTAL for H 1 from page 14</p>	1
<p><b>Total Score for Habitat Functions</b> – add the points for H 1, H 2 and record the result on p. 1</p>	15



Wetland name or number 2

<p><b>SC 2.0 Natural Heritage Wetlands (see p. 87)</b>          Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (<i>this question is used to screen out most sites before you need to contact WNHP/DNR</i>)          S/T/R information from Appendix D ___ or accessed from WNHP/DNR web site ___</p> <p>YES ___ – contact WNHP/DNR (see p. 79) and go to SC 2.2      NO <input checked="" type="checkbox"/></p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?          YES = Category I      NO ___ not a Heritage Wetland</p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0 Bogs (see p. 87)</b>          Does the wetland unit (<b>or any part of the unit</b>) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3      No - go to Q. 2</p> <p>2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?          Yes - go to Q. 3      No - Is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?          Yes – Is a bog for purpose of rating      No - go to Q. 4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>1. Is the unit forested (&gt; 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (&gt; 30% coverage of the total shrub/herbaceous cover)?</p> <p>2. YES = Category I      No ___ Is not a bog for purpose of rating</p>	<p><b>Cat. I</b></p>

Wetland name or number \_\_\_\_\_

<p><b>SC 4.0 Forested Wetlands (see p. 90)</b>          Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> <li>— <b>Old-growth forests:</b> (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</li> </ul> <p>NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <ul style="list-style-type: none"> <li>— <b>Mature forests:</b> (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</li> </ul> <p>YES = Category I      <input checked="" type="radio"/> NO ___ not a forested wetland with special characteristics</p>	<p>Cat. I</p>
<p><b>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</b>          Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> <li>— The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</li> <li>— The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</li> </ul> <p>YES = Go to SC 5.1      NO ___ not a wetland in a coastal lagoon</p> <p><b>SC 5.1 Does the wetland meets all of the following three conditions?</b></p> <ul style="list-style-type: none"> <li>— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).</li> <li>— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</li> <li>— The wetland is larger than 1/10 acre (4350 square feet)</li> </ul> <p>YES = Category I      <input checked="" type="radio"/> NO = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>

Wetland name or number 2

<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b> Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES - go to SC 6.1      <u>NO</u> not an interdunal wetland for rating <i>If you answer yes you will still need to rate the wetland based on its functions.</i> In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"><li>• Long Beach Peninsula- lands west of SR 103</li><li>• Grayland-Westport- lands west of SR 105</li><li>• Ocean Shores-Copalis- lands west of SR 115 and SR 109</li></ul> <p>SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger? YES = Category II      NO – go to SC 6.2</p> <p>SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III</p>	<p>Cat. II</p> <p>Cat. III</p>
<p><b>Category of wetland based on Special Characteristics</b> <i>Choose the "highest" rating if wetland falls into several categories, and record on p. 1.</i> If you answered NO for all types enter "Not Applicable" on p.1</p>	<p>MA</p>



Wetland name or number 3

**WETLAND RATING FORM – WESTERN WASHINGTON**  
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users  
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): 3 Date of site visit: 3-11-09

Rated by Erik Christensen Trained by Ecology? Yes  No  Date of training 4-09

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

Map of wetland unit: Figure     Estimated size    

**SUMMARY OF RATING**

Category based on FUNCTIONS provided by wetland

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>20</u>
Score for Hydrologic Functions	<u>22</u>
Score for Habitat Functions	<u>19</u>
<b>TOTAL score for Functions</b>	<b><u>61</u></b>

Category based on SPECIAL CHARACTERISTICS of wetland

I     II     Does not Apply    

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

**II**

**Summary of basic information about the wetland unit**

Wetland Unit has Special Characteristics	Wetland HGM Class used for Rating	
Estuarine	Depressional	
Natural Heritage Wetland	Riverine	
Bog	Lake-fringe	
Mature Forest	Slope	
Old Growth Forest	Flats	
Coastal Lagoon	Freshwater Tidal	
Interdunal		
None of the above	<input checked="" type="checkbox"/> Check if unit has multiple HGM classes present	

Wetland name or number \_\_\_\_\_

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

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

<b>Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)</b>	<b>YES</b>	<b>NO</b>
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered <b>animal or plant</b> 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 <b>animal</b> 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.		✓

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

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

## Classification of Wetland Units in Western Washington

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

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

NO - go to 2

YES - the wetland class is **Tidal Fringe**

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

NO - go to 3

YES - The wetland class is **Flats**

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

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

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

At least 30% of the open water area is deeper than 6.6 ft (2 m)?

NO - go to 4

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

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

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

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

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

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

NO - go to 5

YES - The wetland class is **Slope**

Wetland name or number \_\_\_\_\_

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

\_\_\_\_\_ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

\_\_\_\_\_ The overbank flooding occurs at least once every two years.

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

NO - go to 6    **YES** - The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO - go to 7    **YES** - The wetland class is **Depressional**

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

NO - go to 8    **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM 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.

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

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

Wetland name or number 3

<b>R Riverine and Freshwater Tidal Fringe Wetlands</b>		<b>Points</b> (only 1 score per box)
<b>WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality</b>		
<b>R</b>	<b>R 1. Does the wetland unit have the <u>potential</u> to improve water quality?</b>	<i>(see p.52)</i>
<b>R</b>	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >3/4 area of wetland points = 8 Depressions cover > 1/2 area of wetland points = 4 If depressions > 1/2 of area of unit draw polygons on aerial photo or map Depressions present but cover < 1/2 area of wetland points = 2 No depressions present points = 0	Figure <u>4</u>
<b>R</b>	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): Trees or shrubs > 2/3 the area of the unit points = 8 Trees or shrubs > 1/3 area of the unit points = <u>6</u> Ungrazed, herbaceous plants > 2/3 area of unit points = <u>6</u> Ungrazed herbaceous plants > 1/3 area of unit points = 3 Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit points = 0 Aerial photo or map showing polygons of different vegetation types	Figure <u>6</u>
<b>R</b>	<i>Add the points in the boxes above</i>	<u>10</u>
<b>R</b>	<b>R 2. Does the wetland unit have the <u>opportunity</u> to improve water quality?</b> 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> <input type="checkbox"/> Grazing in the wetland or within 150ft <input type="checkbox"/> Untreated stormwater discharges to wetland <input type="checkbox"/> Tilled fields or orchards within 150 feet of wetland <input checked="" type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input checked="" type="checkbox"/> Residential, urban areas, golf courses are within 150 ft of wetland <input checked="" type="checkbox"/> The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality <input type="checkbox"/> Other _____ YES multiplier is 2      NO multiplier is 1	<i>(see p.53)</i>  multiplier <u>2</u>
<b>R</b>	<b>TOTAL - Water Quality Functions</b> Multiply the score from R 1 by R 2 <i>Add score to table on p. 1</i>	<u>20</u>

Comments

Wetland name or number \_\_\_\_\_

<b>R Riverine and Freshwater Tidal Fringe Wetlands</b>		<b>Points</b> (only 1 score per box)
<b>HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion</b>		
	<b>R 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?</b>	(see p.54)
<b>R</b>	<p>R 3.1 Characteristics of the overbank storage the unit provides:  <i>Estimate the average width of the wetland unit perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit)/(average width of stream between banks).</i>                      If the ratio is more than 20 points = 9                      If the ratio is between 10 - 20 points = 6                      If the ratio is 5 - &lt;10 points = 4                      If the ratio is 1 - &lt;5 points = 2                      If the ratio is &lt; 1 points = 1</p> <p style="text-align: right;">Aerial photo or map showing average widths</p>	Figure ___  4
<b>R</b>	<p>R 3.2 Characteristics of vegetation that slow down water velocities during floods: <i>Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description.</i> (polygons need to have &gt;90% cover at person height NOT Cowardin classes):                      Forest or shrub for &gt;1/3 area OR herbaceous plants &gt; 2/3 area points = 7                      Forest or shrub for &gt; 1/10 area OR herbaceous plants &gt; 1/3 area points = 4                      Vegetation does not meet above criteria points = 0</p> <p style="text-align: right;">Aerial photo or map showing polygons of different vegetation types</p>	Figure ___  7
<b>R</b>	<i>Add the points in the boxes above</i>	11
<b>R</b>	<p><b>R 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion?</b>                      Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. <i>Note which of the following conditions apply.</i>  <input checked="" type="checkbox"/> There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding.  <input checked="" type="checkbox"/> There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding                      — Other _____</p> <p>(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)                      YES multiplier is 2 NO multiplier is 1</p>	(see p.57)    multiplier  2
<b>R</b>	<b>TOTAL - Hydrologic Functions</b> Multiply the score from R 3 by R 4 <i>Add score to table on p. 1</i>	22

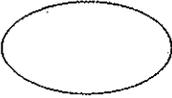
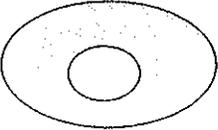
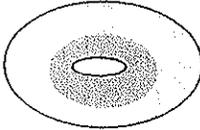
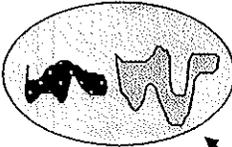
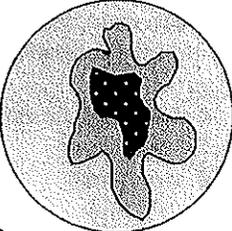
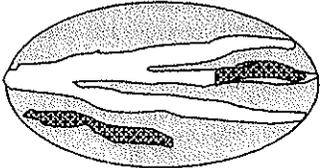
Comments

Wetland name or number 3

<b>These questions apply to wetlands of all HGM classes.</b>		<b>Points</b> (only 1 score per box)																								
<b>HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat</b>																										
<b>H 1. Does the wetland unit have the potential to provide habitat for many species?</b>																										
<p><b>H 1.1. <u>Vegetation structure</u> (see p. 72)</b>            Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</p> <p><input type="checkbox"/> Aquatic bed  <input checked="" type="checkbox"/> Emergent plants  <input type="checkbox"/> Scrub/shrub (areas where shrubs have &gt;30% cover)  <input checked="" type="checkbox"/> Forested (areas where trees have &gt;30% cover)            If the unit has a forested class check if:  <input type="checkbox"/> The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon</p> <p>Add the number of vegetation structures that qualify. If you have:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>4 structures or more</td> <td>points = 4</td> </tr> <tr> <td>3 structures</td> <td>points = 2</td> </tr> <tr> <td><u>2</u> structures</td> <td>points = 1</td> </tr> <tr> <td>1 structure</td> <td>points = 0</td> </tr> </table> <p>Map of Cowardin vegetation classes</p>		4 structures or more	points = 4	3 structures	points = 2	<u>2</u> structures	points = 1	1 structure	points = 0	<p>Figure <u>    </u></p> <p style="text-align: center;">1</p>																
4 structures or more	points = 4																									
3 structures	points = 2																									
<u>2</u> structures	points = 1																									
1 structure	points = 0																									
<p><b>H 1.2. <u>Hydroperiods</u> (see p. 73)</b>            Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td>4 or more types present</td> <td>points = 3</td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flooded or inundated</td> <td><u>3</u> types present</td> <td>points = 2</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td>2 types present</td> <td>point = 1</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturated only</td> <td>1 type present</td> <td>points = 0</td> </tr> <tr> <td><input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> <b>Lake-fringe wetland = 2 points</b></td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> <b>Freshwater tidal wetland = 2 points</b></td> <td></td> <td></td> </tr> </table> <p>Map of hydroperiods</p>		<input type="checkbox"/> Permanently flooded or inundated	4 or more types present	points = 3	<input checked="" type="checkbox"/> Seasonally flooded or inundated	<u>3</u> types present	points = 2	<input type="checkbox"/> Occasionally flooded or inundated	2 types present	point = 1	<input checked="" type="checkbox"/> Saturated only	1 type present	points = 0	<input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland			<input type="checkbox"/> <b>Lake-fringe wetland = 2 points</b>			<input type="checkbox"/> <b>Freshwater tidal wetland = 2 points</b>			<p>Figure <u>    </u></p> <p style="text-align: center;">2</p>
<input type="checkbox"/> Permanently flooded or inundated	4 or more types present	points = 3																								
<input checked="" type="checkbox"/> Seasonally flooded or inundated	<u>3</u> types present	points = 2																								
<input type="checkbox"/> Occasionally flooded or inundated	2 types present	point = 1																								
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<input type="checkbox"/> <b>Lake-fringe wetland = 2 points</b>																										
<input type="checkbox"/> <b>Freshwater tidal wetland = 2 points</b>																										
<p><b>H 1.3. <u>Richness of Plant Species</u> (see p. 75)</b>            Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. (different patches of the same species can be combined to meet the size threshold)            You do not have to name the species.            Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle</p> <p>If you counted:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>&gt; 19 species</td> <td>points = 2</td> </tr> <tr> <td>5 - 19 species</td> <td>points = <u>1</u></td> </tr> <tr> <td>&lt; 5 species</td> <td>points = 0</td> </tr> </table> <p>List species below if you want to:</p>		> 19 species	points = 2	5 - 19 species	points = <u>1</u>	< 5 species	points = 0	<p>Figure <u>    </u></p> <p style="text-align: center;">1</p>																		
> 19 species	points = 2																									
5 - 19 species	points = <u>1</u>																									
< 5 species	points = 0																									

Total for page 4

Wetland name or number \_\_\_\_\_

<p><b>H 1.4. Interspersion of habitats</b> (see p. 76)          Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated 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-end; text-align: center;"> <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;">  </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-end; text-align: center; margin-top: 10px;"> <div style="text-align: center;">               High = 3 points         </div> <div style="text-align: center;">               High = 3 points         </div> <div style="text-align: center;">               [riparian braided channels]         </div> </div> <p style="font-size: small;">NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes</p>	<p>Figure _____</p>
<p><b>H 1.5. Special Habitat Features:</b> (see p. 77)          Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.</p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (&gt;4in. diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 inches) in the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt;30degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown)</p> <p><input type="checkbox"/> At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (structures for egg-laying by amphibians)</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants</p> <p style="font-size: x-small;">NOTE: The 20% stated in early printings of the manual on page 78 is an error.</p>	
<p><b>H 1. TOTAL</b> Score - potential for providing habitat          Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>	<p>6</p>

Comments

Wetland name or number 3

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	Figure
<p><b>H 2.1 Buffers (see p. 80)</b>            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."</p> <ul style="list-style-type: none"> <li>— 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) <b>Points = 5</b></li> <li>— 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 50% circumference. <b>Points = 4</b></li> <li>— 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference. <b>Points = 4</b></li> <li><input checked="" type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 25% circumference. <b>Points = 3</b></li> <li>— 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt; 50% circumference. <b>Points = 3</b></li> </ul> <p style="text-align: center;"><b>If buffer does not meet any of the criteria above</b></p> <ul style="list-style-type: none"> <li>— No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland &gt; 95% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></li> <li>— No paved areas or buildings within 50m of wetland for &gt;50% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></li> <li>— Heavy grazing in buffer. <b>Points = 1</b></li> <li>— Vegetated buffers are &lt;2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) <b>Points = 0.</b></li> <li>— Buffer does not meet any of the criteria above. <b>Points = 1</b></li> </ul> <p style="text-align: center;">Aerial photo showing buffers</p>	<p>3</p>
<p><b>H 2.2 Corridors and Connections (see p. 81)</b></p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).            YES = 4 points (go to H 2.3)                      NO = go to H 2.2.2</p> <p>H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? <b>OR</b> a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above?            YES = 2 points (go to H 2.3)                      NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:            within 5 mi (8km) of a brackish or salt water estuary OR            within 3 mi of a large field or pasture (&gt;40 acres) OR            within 1 mi of a lake greater than 20 acres?            YES = 1 point    NO = 0 points</p>	<p>2</p>

Total for page 5

Wetland name or number \_\_\_\_\_

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

<p>H 2.4 <u>Wetland Landscape</u> (choose the <b>one</b> description of the landscape around the wetland that best fits) (see p. 84)</p> <p>There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5)</p> <p>The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5</p> <p>There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3</p> <p>The wetland is Lake-fringe on a lake <b>with</b> disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3</p> <p>There is at least 1 wetland within ½ mile. points = 2</p> <p>There are no wetlands within ½ mile. points = 0</p>	<p>5</p>
<p><b>H 2. TOTAL Score - opportunity for providing habitat</b> Add the scores from H2.1, H2.2, H2.3, H2.4</p>	<p>13</p>
<p>TOTAL for H 1 from page 14</p>	<p>6</p>
<p><b>Total Score for Habitat Functions</b> – add the points for H 1, H 2 and record the result on p. 1</p>	<p>19</p>

Wetland name or number \_\_\_\_\_

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

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

<p><b>Wetland Type</b>  <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i></p>	<p><b>Category</b></p>
<p><b>SC 1.0 Estuarine wetlands (see p. 86)</b>            Does the wetland unit meet the following criteria for Estuarine wetlands?            — The dominant water regime is tidal,            — Vegetated, and            — With a salinity greater than 0.5 ppt.            YES = Go to SC 1.1      <u>NO</u> _____</p>	
<p><b>SC 1.1</b> Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?            YES = Category I      NO go to SC 1.2</p>	<p><b>Cat. I</b></p>
<p><b>SC 1.2</b> Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II            — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.            — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.            — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</p>	<p><b>Cat. I</b>  <b>Cat. II</b>    <b>Dual rating</b>  <b>I/II</b></p>

<p><b>SC 2.0 Natural Heritage Wetlands (see p. 87)</b>                  Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? <i>(this question is used to screen out most sites before you need to contact WNHP/DNR)</i>                  S/T/R information from Appendix D ___ or accessed from WNHP/DNR web site ___</p> <p>YES ___ – contact WNHP/DNR (see p. 79) and go to SC 2.2      <b>NO</b> ___</p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?                  YES = Category I      NO ___ not a Heritage Wetland</p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0 Bogs (see p. 87)</b>                  Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3      <b>No</b> - go to Q. 2</p> <p>2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?                  Yes - go to Q. 3      <b>No</b> - Is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?                  Yes -- Is a bog for purpose of rating      No - go to Q. 4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>1. Is the unit forested (&gt; 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (&gt; 30% coverage of the total shrub/herbaceous cover)?</p> <p>2. YES = Category I      No ___ Is not a bog for purpose of rating</p>	<p><b>Cat. I</b></p>

<p><b>SC 4.0 Forested Wetlands (see p. 90)</b>                  Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> <li>— <b>Old-growth forests:</b> (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</li> </ul> <p style="margin-left: 40px;">NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <ul style="list-style-type: none"> <li>— <b>Mature forests:</b> (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</li> </ul> <p>YES = Category I      <input checked="" type="radio"/> NO not a forested wetland with special characteristics</p>	<p><b>Cat. I</b></p>
<p><b>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</b>                  Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> <li>— The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</li> <li>— The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</li> </ul> <p>YES = Go to SC 5.1      <input checked="" type="radio"/> NO not a wetland in a coastal lagoon</p> <p><b>SC 5.1 Does the wetland meets all of the following three conditions?</b></p> <ul style="list-style-type: none"> <li>— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).</li> <li>— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</li> <li>— The wetland is larger than 1/10 acre (4350 square feet)</li> </ul> <p style="text-align: center;">YES = Category I      NO = Category II</p>	<p><b>Cat. I</b></p> <p><b>Cat. II</b></p>

Wetland name or number 3

<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b></p> <p>Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?</p> <p>YES - go to SC 6.1                      NO <u>  </u> not an interdunal wetland for rating <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"><li>• Long Beach Peninsula- lands west of SR 103</li><li>• Grayland-Westport- lands west of SR 105</li><li>• Ocean Shores-Copalis- lands west of SR 115 and SR 109</li></ul> <p>SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger?</p> <p>YES = Category II                      NO <u>  </u> go to SC 6.2</p> <p>SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?</p> <p>YES = Category III</p>	<p>Cat. II</p> <p>Cat. III</p>
<p><b>Category of wetland based on Special Characteristics</b></p> <p><i>Choose the "highest" rating if wetland falls into several categories, and record on p. 1.</i></p> <p>If you answered NO for all types enter "Not Applicable" on p.1</p>	<p>NA</p>



Wetland name or number 4

**WETLAND RATING FORM – WESTERN WASHINGTON**  
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users  
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): 4 Date of site visit: 4-2-09

Rated by Enk Christensen Trained by Ecology? Yes  No  Date of training 4-09

SEC: \_\_\_ TOWNSHIP: \_\_\_ RANGE: \_\_\_ Is S/T/R in Appendix D? Yes \_\_\_ No \_\_\_

Map of wetland unit: Figure \_\_\_ Estimated size \_\_\_

### SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I \_\_\_ II  III \_\_\_ IV \_\_\_

Category I = Score $\geq 70$
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score $< 30$

Score for Water Quality Functions	16
Score for Hydrologic Functions	23
Score for Habitat Functions	23
<b>TOTAL score for Functions</b>	<b>62</b>

Category based on SPECIAL CHARACTERISTICS of wetland

I \_\_\_ II \_\_\_ Does not Apply

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

II
----

#### Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics	Wetland HGM Class used for Rating	
Estuarine	Depressional	
Natural Heritage Wetland	Riverine	<input checked="" type="checkbox"/>
Bog	Lake-fringe	
Mature Forest	Slope	
Old Growth Forest	Flats	
Coastal Lagoon	Freshwater Tidal	
Interdunal		
None of the above	Check if unit has multiple HGM classes present	<input checked="" type="checkbox"/>

Wetland name or number \_\_\_\_\_

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

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

<b>Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)</b>	<b>YES</b>	<b>NO</b>
<p>SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered <b>animal or plant</b> 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>		
<p>SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered <b>animal</b> 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>		
<p>SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i></p>		
<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>		

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

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

## Classification of Wetland Units in Western Washington

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

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

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

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

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

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

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

\_\_\_ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

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

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

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

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

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

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

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

Wetland name or number .....

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

The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

The overbank flooding occurs at least once every two years.

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

NO - go to 6      **YES** - The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO - go to 7      **YES** - The wetland class is **Depressional**

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

NO - go to 8      **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM 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.

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

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



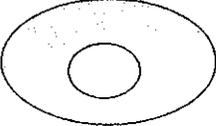
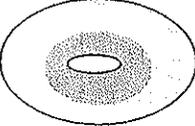
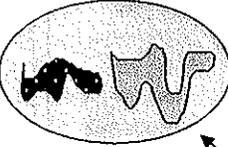
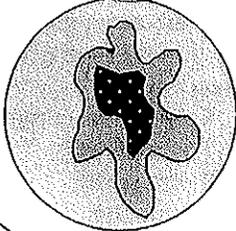
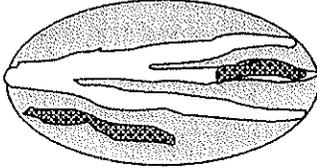
Wetland name or number \_\_\_\_\_

<b>R Riverine and Freshwater Tidal Fringe Wetlands</b> <b>HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion</b>		<b>Points</b> <small>(only 1 score per box)</small>
	<b>R 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?</b>	<i>(see p.54)</i>
R	R 3.1 Characteristics of the overbank storage the unit provides: <i>Estimate the average width of the wetland unit perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: ( average width of unit)/( average width of stream between banks).</i> If the ratio is more than 20 points = 9 If the ratio is between 10 – 20 points = <u>6</u> If the ratio is 5 - <10 points = 4 If the ratio is 1 - <5 points = 2 If the ratio is < 1 points = 1 Aerial photo or map showing average widths	Figure ____  6
R	R 3.2 Characteristics of vegetation that slow down water velocities during floods: <i>Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description. (polygons need to have &gt;90% cover at person height NOT Cowardin classes):</i> Forest or shrub for >1/3 area OR herbaceous plants > 2/3 area points = <u>7</u> Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area points = 4 Vegetation does not meet above criteria points = 0 Aerial photo or map showing polygons of different vegetation types	Figure ____  7
R	<i>Add the points in the boxes above</i>	13
R	<b>R 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion?</b> Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. <i>Note which of the following conditions apply.</i> <input checked="" type="checkbox"/> There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. <input checked="" type="checkbox"/> There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding <input type="checkbox"/> Other _____ <i>(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)</i> YES multiplier is 2      NO multiplier is 1	<i>(see p.57)</i>      multiplier  2
R	<b>TOTAL - Hydrologic Functions</b> Multiply the score from R 3 by R 4 <i>Add score to table on p. 1</i>	23

Comments



Wetland name or number .....

<p><b>H 1.4. Interspersion of habitats (see p. 76)</b> Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> <div style="text-align: center;">  <p>Moderate = 2 points</p> </div> <div style="text-align: center;">  </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;">  <p>High = 3 points</p> </div> <div style="text-align: center;">  <p>[riparian braided channels]</p> </div> </div> <p>NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes</p>	<p>Figure ____</p> <p style="text-align: center; font-size: 2em;">1</p>
<p><b>H 1.5. Special Habitat Features: (see p. 77)</b> Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (&gt;4in. diameter and 6 ft long).</li> <li><input checked="" type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 inches) in the wetland</li> <li><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)</li> <li><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt;30degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet turned grey/brown</i>)</li> <li><input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (<i>structures for egg-laying by amphibians</i>)</li> <li><input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants</li> </ul> <p>NOTE: The 20% stated in early printings of the manual on page 78 is an error.</p>	<p style="font-size: 2em;">3</p>
<p><b>H 1. TOTAL Score - potential for providing habitat</b> Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>	<p style="font-size: 2em;">9</p>

Comments



Wetland name or number \_\_\_\_\_

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

<p><b>H 2.4 Wetland Landscape</b> (<i>choose the one description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p>There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5</p> <p>The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5</p> <p>There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3</p> <p>The wetland is Lake-fringe on a lake <b>with</b> disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3</p> <p>There is at least 1 wetland within ½ mile. points = 2</p> <p>There are no wetlands within ½ mile. points = 0</p>	<p>S</p>
<p><b>H 2. TOTAL Score</b> - opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	<p>14</p>
<p>TOTAL for H 1 from page 14</p>	<p>9</p>
<p><b>Total Score for Habitat Functions</b> – add the points for H 1, H 2 and record the result on p. 1</p>	<p>23</p>





<p><b>SC 4.0 Forested Wetlands (see p. 90)</b>                  Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> <li>— <b>Old-growth forests:</b> (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</li> </ul> <p>NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <ul style="list-style-type: none"> <li>— <b>Mature forests:</b> (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</li> </ul> <p>YES = Category I      <input checked="" type="radio"/> NO ___ not a forested wetland with special characteristics</p>	<p><b>Cat. I</b></p>
<p><b>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</b>                  Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> <li>— The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</li> <li>— The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</li> </ul> <p>YES = Go to SC 5.1      <input checked="" type="radio"/> NO ___ not a wetland in a coastal lagoon</p> <p><b>SC 5.1</b> Does the wetland meets all of the following three conditions?</p> <ul style="list-style-type: none"> <li>— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).</li> <li>— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</li> <li>— The wetland is larger than 1/10 acre (4350 square feet)</li> </ul> <p>YES = Category I      NO = Category II</p>	<p><b>Cat. I</b></p> <p><b>Cat. II</b></p>

Wetland name or number \_\_\_\_\_

<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b> Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES - go to SC 6.1      <b>NO</b> not an interdunal wetland for rating <i>If you answer yes you will still need to rate the wetland based on its functions.</i> In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"><li>• Long Beach Peninsula- lands west of SR 103</li><li>• Grayland-Westport- lands west of SR 105</li><li>• Ocean Shores-Copalis- lands west of SR 115 and SR 109</li></ul> <p>SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger? YES = Category II      NO – go to SC 6.2</p> <p>SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III</p>	<p><b>Cat. II</b></p> <p><b>Cat. III</b></p>
<p><b>Category of wetland based on Special Characteristics</b> <i>Choose the "highest" rating if wetland falls into several categories, and record on p. 1.</i> If you answered NO for all types enter "Not Applicable" on p.1</p>	<p>NA</p>



**APPENDIX C**  
**Functional Assessment Forms**



## Wetland Functions & Values Form

Wetland I.D. 1

Project: Fennel Creek

Assessed by: Erik Christensen

Cowardin Class: PEM Ecology Category: III Local Rating: III Wetland size: 0.02 acre Date: 5/28/079

Function/Value	Occurrence		Rationale	Principal Function(s)	Comments
	Y	N			
Flood Flow Alteration	X		Wetland is located adjacent to Fennel Creek and receives floodwaters.		Rating=Moderate Qualifiers: (1, 6)
Sediment Removal	X		Wetland is vegetated with herbaceous vegetation.		Rating=Low Qualifiers: (3)
Nutrient & Toxicant Removal	X		Wetland is seasonally inundated and is vegetated with herbaceous vegetation.		Rating=Moderate Qualifiers: (2, 4)
Erosion Control & Shoreline Stabilization	X		Wetland is adjacent to Fennel Creek and is vegetated with herbaceous vegetation.		Rating=Low Qualifiers: (2)
Production of Organic Matter and its Export	X		Wetland is adjacent to Fennel Creek and is vegetated with herbaceous vegetation.		Rating=Moderate Qualifiers: (1, 5, 6)
General Habitat Suitability	X		Wetland has connectivity to Fennel Creek. The area immediately surrounding the wetland is undeveloped.		Rating=Moderate Qualifiers: (2, 3)
Habitat for Aquatic Invertebrates	X		Wetland is vegetated with emergent vegetation and is located adjacent to Fennel Creek.		Rating=Moderate Qualifiers: (1, 4, 6)
Habitat for Amphibians	X		Wetland is vegetated with emergent vegetation, seasonally inundated, and is located adjacent to Fennel Creek		Rating=Moderate Qualifiers: (1, 2, 6)
Habitat for Wetland-Associated Mammals		X	No permanent inundation in the wetland.		Does not provide
Habitat for Wetland-Associated Birds		X	No open water component in the wetland.		Does not provide
General Fish Habitat	X	X	Wetland is adjacent to Fennel Creek and is vegetated with herbaceous vegetation.		Rating=Moderate Qualifiers: (1, 4)
Native Plant Richness	X		Wetland is dominated by native vegetation.		Rating=Low Qualifiers: (1)
Educational or Scientific Value		X	There is no nearby parking & the site has no documented scientific or educational use.		Does not provide
Uniqueness and Heritage		X	No documented protected species or habitat; not determined significant by local jurisdiction.		Does not provide

## Wetland Functions & Values Form

Wetland I.D. 2

Project: Fennel Creek

Assessed by: Erik Christensen

Cowardin Class: PEM Ecology Category: III Local Rating: III Wetland size: 0.03 acre Date: 5/28/079

Function/Value	Occurrence		Rationale	Principal Function(s)	Comments
	Y	N			
Flood Flow Alteration	X		Wetland is located adjacent to Fennel Creek and receives floodwaters.		Rating=Moderate Qualifiers: (1, 6)
Sediment Removal	X		Wetland is vegetated with herbaceous vegetation.		Rating=Low Qualifiers: (3)
Nutrient & Toxicant Removal	X		Wetland has areas of seasonal inundation and is vegetated with herbaceous vegetation.		Rating=Moderate Qualifiers: (2, 4)
Erosion Control & Shoreline Stabilization	X		Wetland is adjacent to Fennel Creek and is vegetated with herbaceous vegetation.		Rating=Low Qualifiers: (2)
Production of Organic Matter and its Export	X		Wetland is adjacent to Fennel Creek and is vegetated with herbaceous vegetation.		Rating=Moderate Qualifiers: (1, 5, 6)
General Habitat Suitability	X		Wetland has connectivity to Fennel Creek. The area immediately surrounding the wetland is undeveloped.		Rating=Moderate Qualifiers: (2, 3)
Habitat for Aquatic Invertebrates	X		Wetland is vegetated with emergent vegetation and is located adjacent to Fennel Creek		Rating=Moderate Qualifiers: (1, 4, 6)
Habitat for Amphibians	X		Wetland is vegetated with emergent vegetation, has areas of seasonal inundation, and is located adjacent to Fennel Creek		Rating=Moderate Qualifiers: (1, 2, 6)
Habitat for Wetland-Associated Mammals		X	No permanent inundation in the wetland.		Does not provide
Habitat for Wetland-Associated Birds		X	No open water component in the wetland.		Does not provide
General Fish Habitat	X	X	Wetland is adjacent to Fennel Creek and is vegetated with herbaceous vegetation.		Rating=Moderate Qualifiers: (1, 4)
Native Plant Richness	X		Wetland is dominated by native vegetation.		Rating=Low Qualifiers: (1)
Educational or Scientific Value		X	There is no nearby parking & the site has no documented scientific or educational use.		Does not provide
Uniqueness and Heritage		X	No documented protected species or habitat; not determined significant by local jurisdiction.		Does not provide

## Wetland Functions & Values Form

Wetland I.D. 3

Project: Fennel Creek

Assessed by: Erik Christensen

Cowardin Class: PEM/PFO

Ecology Category: II

Local Rating: II

Wetland size: 0.39 acre

Date: 5/28/079

Function/Value	Occurrence		Rationale	Principal Function(s)	Comments
	Y	N			
Flood Flow Alteration	X		Wetland is located adjacent to Fennel Creek, has areas with dense woody vegetation, and receives floodwaters.		Rating=Moderate Qualifiers: (1, 5, 6)
Sediment Removal	X		Wetland is vegetated with herbaceous vegetation and is seasonally inundated.		Rating=Moderate Qualifiers: (3, 5)
Nutrient & Toxicant Removal	X		Wetland is seasonally inundated and is densely vegetated with herbaceous vegetation.		Rating=High Qualifiers: (2, 4)
Erosion Control & Shoreline Stabilization	X		Wetland is adjacent to Fennel Creek and is vegetated with woody and herbaceous vegetation.		Rating=Moderate Qualifiers: (2)
Production of Organic Matter and its Export	X		Wetland is adjacent to Fennel Creek and is vegetated with herbaceous vegetation.		Rating=Moderate Qualifiers: (1, 5, 6)
General Habitat Suitability	X		Wetland has connectivity to Fennel Creek. The area immediately surrounding the wetland is undeveloped.		Rating=Moderate Qualifiers: (2, 3)
Habitat for Aquatic Invertebrates	X		Wetland is vegetated with emergent vegetation, contains woody debris, and is located adjacent to Fennel Creek.		Rating=High Qualifiers: (1, 4, 5, 6)
Habitat for Amphibians	X		Wetland is vegetated with emergent, contains woody debris, seasonally inundated, and is located adjacent to Fennel Creek		Rating=High Qualifiers: (1, 2, 4, 6)
Habitat for Wetland-Associated Mammals		X	No permanent inundation in the wetland.		Does not provide
Habitat for Wetland-Associated Birds		X	No open water component in the wetland.		Does not provide
General Fish Habitat	X		Wetland is adjacent to Fennel Creek and is vegetated with herbaceous and woody vegetation.		Rating=Moderate Qualifiers: (1, 4)
Native Plant Richness	X		Wetland has two Cowardin classes and contains mature trees. However, emergent community is dominated by reed canary grass ( <i>Phalaris arundinacea</i> )		Rating=Low Qualifiers: (2, 4)
Educational or Scientific Value		X	There is no nearby parking & the site has no documented scientific or educational use.		Does not provide
Uniqueness and Heritage		X	No documented protected species or habitat; not determined significant by local jurisdiction.		Does not provide

## Wetland Functions & Values Form

Wetland I.D. 4

Project: Fennel Creek

Assessed by: Erik Christensen

Cowardin Class: PEM/PFO

Ecology Category: II

Local Rating: II

Wetland size: 2.38 acre

Date: 5/28/079

Function/Value	Occurrence		Rationale	Principal Function(s)	Comments
	Y	N			
Flood Flow Alteration	X		Wetland is located in the upper portion of the watershed and has areas with dense woody vegetation. Although it is adjacent to Fennel Creek, it does not receive floodwaters.		Rating=Moderate Qualifiers: (1, 5)
Sediment Removal	X		Wetland is vegetated with herbaceous vegetation and is seasonally inundated.		Rating=Moderate Qualifiers: (3, 4)
Nutrient & Toxicant Removal	X		Wetland is seasonally inundated in areas and is densely vegetated with herbaceous vegetation.		Rating=Moderate Qualifiers: (2, 4)
Erosion Control & Shoreline Stabilization	X		Wetland is adjacent to Fennel Creek and is densely vegetated.		Rating=High Qualifiers: (1, 3)
Production of Organic Matter and its Export	X		Wetland is adjacent to Fennel Creek and is densely vegetated.		Rating=High Qualifiers: (1, 2, 3, 5, 6)
General Habitat Suitability	X		Wetland has connectivity to Fennel Creek, densely vegetated, contains two Cowardin classes, and the area immediately surrounding the wetland is undeveloped.		Rating=High Qualifiers: (1,2, 3, 4, 5)
Habitat for Aquatic Invertebrates	X		Wetland is densely vegetated, is seasonally inundated in areas, contains woody debris, and is located adjacent to Fennel Creek.		Rating=High Qualifiers: (1, 4, 5, 6)
Habitat for Amphibians	X		Wetland is vegetated with emergent, contains woody debris, seasonally inundated, and is located adjacent to Fennel Creek		Rating=High Qualifiers: (1, 3, 4, 6)
Habitat for Wetland-Associated Mammals		X	No permanent inundation in the wetland.		Does not provide
Habitat for Wetland-Associated Birds		X	No open water component in the wetland.		Does not provide
General Fish Habitat	X		Wetland is adjacent to Fennel Creek and is vegetated with herbaceous and woody vegetation.		Rating=Moderate Qualifiers: (1, 4)
Native Plant Richness	X		Wetland has two Cowardin classes and contains mature trees and has high plant diversity.		Rating=High Qualifiers: (2, 4)
Educational or Scientific Value		X	There is no nearby parking & the site has no documented scientific or educational use.		Does not provide
Uniqueness and Heritage		X	No documented protected species or habitat; not determined significant by local jurisdiction.		Does not provide

**APPENDIX D**  
**Site Photographs**





**Photograph 1. Wetland 1 from the west facing east.**



**Photograph 2. Upland buffer of Wetland 1 facing west.**



Photograph 3. Wetland 2 facing north.



Photograph 4. Wetland 2 facing south.



Photograph 5. Upland buffer of Wetland 2 facing north.



Photograph 6. Wetland 3 facing east.



**Photograph 7. Upland buffer to the east of Wetland 3.**



**Photograph 8. Emergent vegetation in Wetland 4.**



**Photograph 9. Wetland 4.**



**Photograph 10. Palustrine emergent component of Wetland 4.**



Photograph 11. Upland buffer to the east of Wetland 4.