

# US 2 Winton Road

## USACE NWP (14 and 23) 200301285

### North Central Region

### 2014 MONITORING REPORT

### Wetlands Program

*Issued March 2015*



**Washington State  
Department of Transportation**

Environmental Services Office

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# US 2 Winton Road Mitigation Site

## USACE NWP (14 and 23) 200301285



General Site Information		
USACE NWP #	200301285	
Mitigation Location	E. of Leavenworth, adjacent to the Wenatchee River, Chelan County.	
LLID Number	1206613475848	
Construction Date	2004	
Monitoring Period	2005-2014	
Year of Monitoring	10 of 10	
Area of Project Impact <sup>1</sup>	0.17 acre	
Type of Mitigation	Wetland Enhancement	Wetland Establishment
Area of Mitigation	0.30 acre	0.14 acre
Type of Mitigation	Off-Channel Salmonid Habitat	Riparian Preservation
Area of Mitigation	0.25 acre	0.71 acre

<sup>1</sup> Area of project impact and areas of mitigation taken from Haddaway 2003.

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## Summary of Monitoring Results and Management Activities (2014)

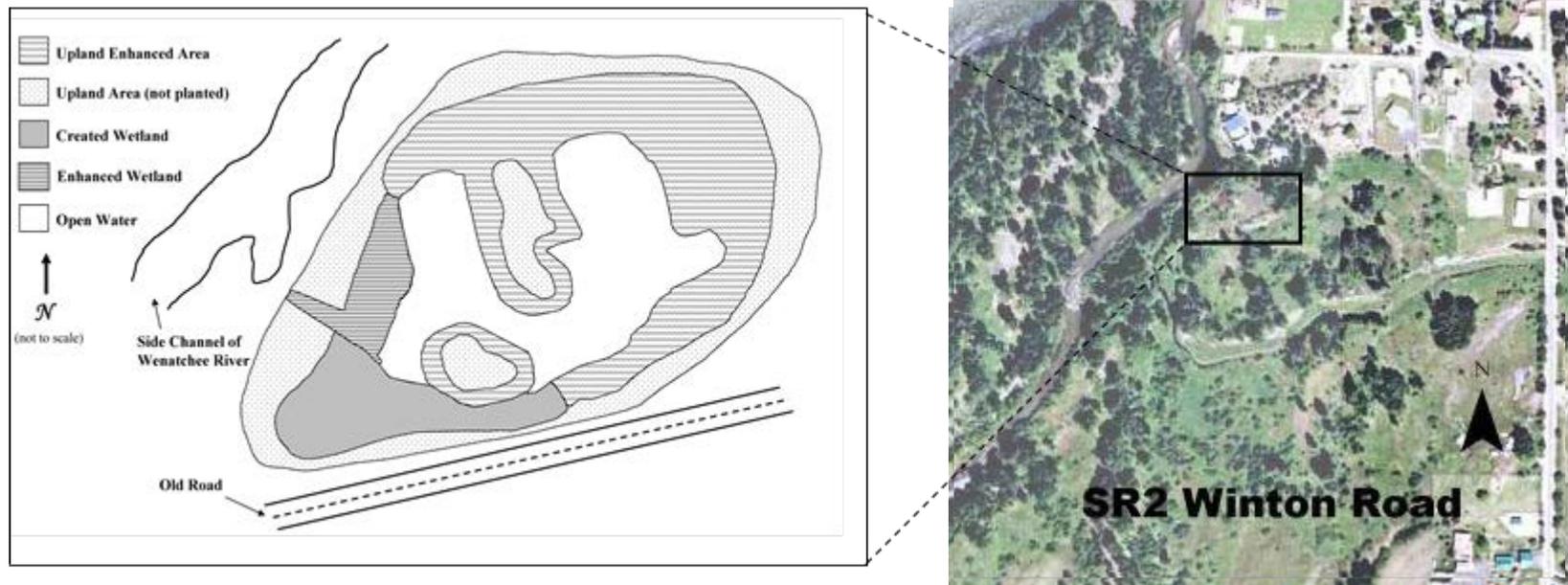
Performance Standards	2014 Results	Management Activities
The enhancement and creation portions of the mitigation site, that are not perennially inundated (i.e. standing water present during July/August), will achieve 50% cover by native woody species.	65% cover (qualitative) across entire site.	

## Report Introduction

This report summarizes final-year (Year-10) monitoring activities at the United States (US) 2 Winton Road Mitigation Site. Included are a site description, the performance standards, an explanation of monitoring methods, an evaluation of site success, and a wetland delineation report and wetland rating form. Monitoring activities included vegetation surveys and photo-documentation. Monitoring activities occurred on August 4 and 5, 2014.

## What is the US 2 Winton Road Mitigation Site?

This 1.4-acre mitigation site (Figure 1) is located in the City of Leavenworth, adjacent to a side channel of the Wenatchee River. It was originally used as a rock quarry by the Washington Department of Highways. This site was constructed to compensate for impacts to 0.17 acre of wetlands and 0.07 acre of wetland buffer due to the realignment of Winton Road. The site includes enhanced and established wetlands and off-channel salmonid habitat. It is designed to provide mitigation for lost wetland functions including flood storage, water quality improvement, and wildlife habitat functions.



**Figure 1 Site Sketch**

The US 2 Winton Road Mitigation Site contains two ponds that were originally present on site. They have been re-graded and connected by a channel. In the spring and winter they maintain a hydrologic connection to the Wenatchee River. Native grass and emergent seed mixes were planted along the edge of the ponds in the upland enhancement area. Native woody species were planted in both the established and enhanced wetlands.

## What are the performance standards for this site?

### Year 10

#### Performance Standard 1

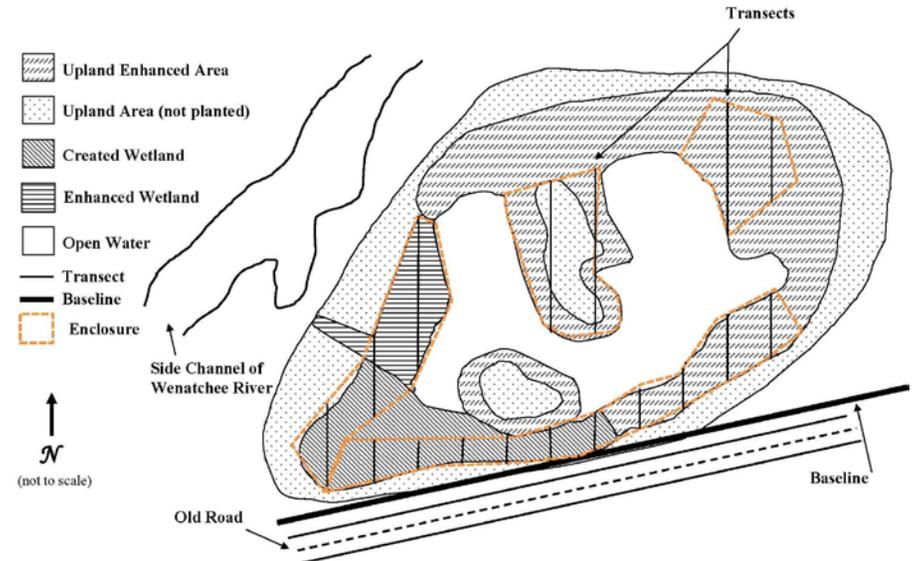
The enhancement and creation portions of the mitigation site, that are not perennially inundated (i.e. standing water present during July/August), will achieve 50 percent cover by native woody species.

Appendix 1 shows the planting plan (as-built) (Bell 2005).

## How was the performance standard evaluated?

To evaluate standards for woody cover, a baseline was established parallel to the old road (Figure 2). Twenty-one sampling transects were randomly placed perpendicular to the baseline. The line intercept method was used to determine woody cover (Performance Standard 1). Quantitative data was only collected with the enclosures. The enclosures contain the majority of the planted wetland vegetation. The cover of native woody (including pre-existing) vegetation across the entire site was estimated qualitatively.

For additional details on the methods, see the [WSDOT Wetland Mitigation Site Monitoring Methods Paper](#) (WSDOT 2008).



**Figure 2 Site Sampling Design (2014)**

## **Is this site a success?**

This site has successfully achieved the goals of increasing flood storage and providing habitat for anadromous fish and other species of wildlife. The successful grading of this former pit site has created a single pond with various water depths that during times of high water is connected directly to the Wenatchee River. The volume of water that can potentially be stored in this pond has been greatly increased by grading as much as twelve feet from the pre-existing elevations. The increased depth prevents the pond from drying out in the summer and from freezing in the winter and therefore provides year-round rearing habitat for fish. Vegetation communities on this site have benefitted from the deer fence that was installed in 2009. Since then, woody cover within the enclosures has increased significantly between each quantitative monitoring event. Mature pre-existing vegetation, primarily black cottonwood, provides an overstory across much of the east side of the site. Native emergent species are present along much of the shoreline providing habitat for amphibians and wading birds. Sixteen avian species were observed during the two days of vegetation monitoring in 2014. Deer and bear scat and beaver sign were also observed in 2014.

Results for Performance Standard 1

(The enhancement and creation portions of the mitigation site will achieve 50% cover by native woody species):

The cover of woody vegetation across the entire site (includes planted vegetation outside of enclosures and pre-existing vegetation) is qualitatively estimated at 65 percent (Photo 2). Dominant species observed in all planting areas included black cottonwood (*Populus balsamifera*), black hawthorn (*Crataegus douglasii*), snowberry (*Symphoricarpos albus*), cluster rose (*Rosa pisocarpa*), and several species of willows (*Salix spp.*).

The cover of native woody species with the established enclosures is 41% cover (CI<sub>80%</sub> = 33-50%) (Photo 1). This estimate is likely just below the performance standard target; however woody cover within the enclosures has increased dramatically over the last three quantitative monitoring events (see table below).

Year	Percent Woody Cover Within Enclosures
2009	9 (CI <sub>80%</sub> = 6-11)
2011	21 (CI <sub>80%</sub> = 16-27)
2014	41 (CI <sub>80%</sub> = 33-50)

**What is planned for this site?**

Routine weed control and enclosure maintenance will occur until close-out.



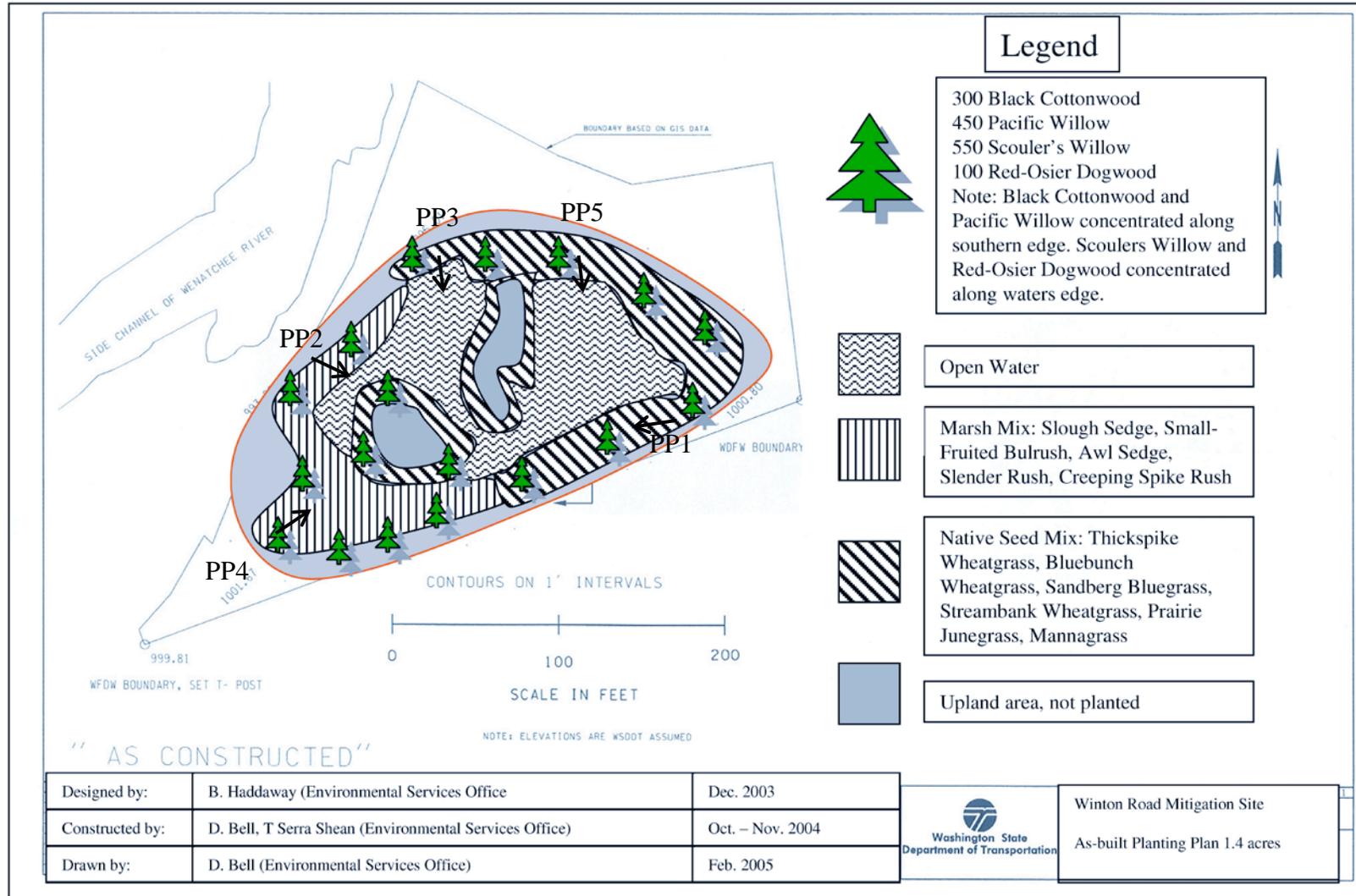
**Photo 1**  
**Woody vegetation within enclosure (August 2014)**



**Photo 2**  
**Woody vegetation outside of enclosure (August 2014)**

# Appendix 1 –As-Built with Photo Point Locations

(Bell 2005)



## Appendix 2 – Photo Points

The photographs below were taken from permanent photo-points on August 5, 2014 and document current site development.



**Photo Point 1**



**Photo Point 2**



**Photo Point 3**



**Photo Point 4**



**Photo Point 5**

**Driving Directions:**

From US 2 east of Leavenworth take a left onto E Leavenworth Road. Proceed 1.2 miles and park in front of the driveway/old road on the right side of the road. This is just past MP 1. Walk approximately one quarter mile down the old road to the mitigation site.

# Appendix 2 – Wetland Delineation Report

# **WETLAND DELINEATION REPORT**

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## **US 2 Winton Road Project**

**Chelan County, Washington**

USACE 200301285

**Prepared by:  
WSDOT Environmental Services Office  
Olympia, Washington**

**October 2014**



**Washington State  
Department of Transportation**

# Introduction

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This report was prepared by the Washington State Department of Transportation (WSDOT) to describe the wetland boundary delineation for the US 2 Winton Road mitigation site. The site mitigates for unavoidable wetland, stream, and buffer impacts resulting from the US 2 Winton Road intersection realignment project.

Field work was conducted at the US 2 Winton Road mitigation site by WSDOT wetland biologists Kristen Andrews and Tatiana Dreisbach on May 14, 2013. The delineation identifies 0.65 acres of wetland within the site boundary.

General Information for the US 2 Winton Road Mitigation Site		
<b>Location:</b>	Chelan County, in Leavenworth (Vicinity map, Figure 1)	
	<b>USACE NWP 14 and 23</b>	2003-01285
	<b>Long./Lat. ID Number</b>	1206613475848
	<b>Land Resource Region (LRR)</b>	A
	<b>Major Land Resource Area (MLRA)</b>	6
	<b>Construction Date</b>	2004
	<b>Monitoring Period</b>	2005 - 2014
	<b>Year of Monitoring</b>	10 of 10 (in 2014)
<b>Area of Project Impact<sup>1</sup></b>	0.17 acres	
<b>Total Delineated Wetland Area</b>	0.65 acres	

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<sup>1</sup> Project impacts are described in the US 2 Winton Road Wetland Mitigation Plan on page 2 (WSDOT 2003).

# Location

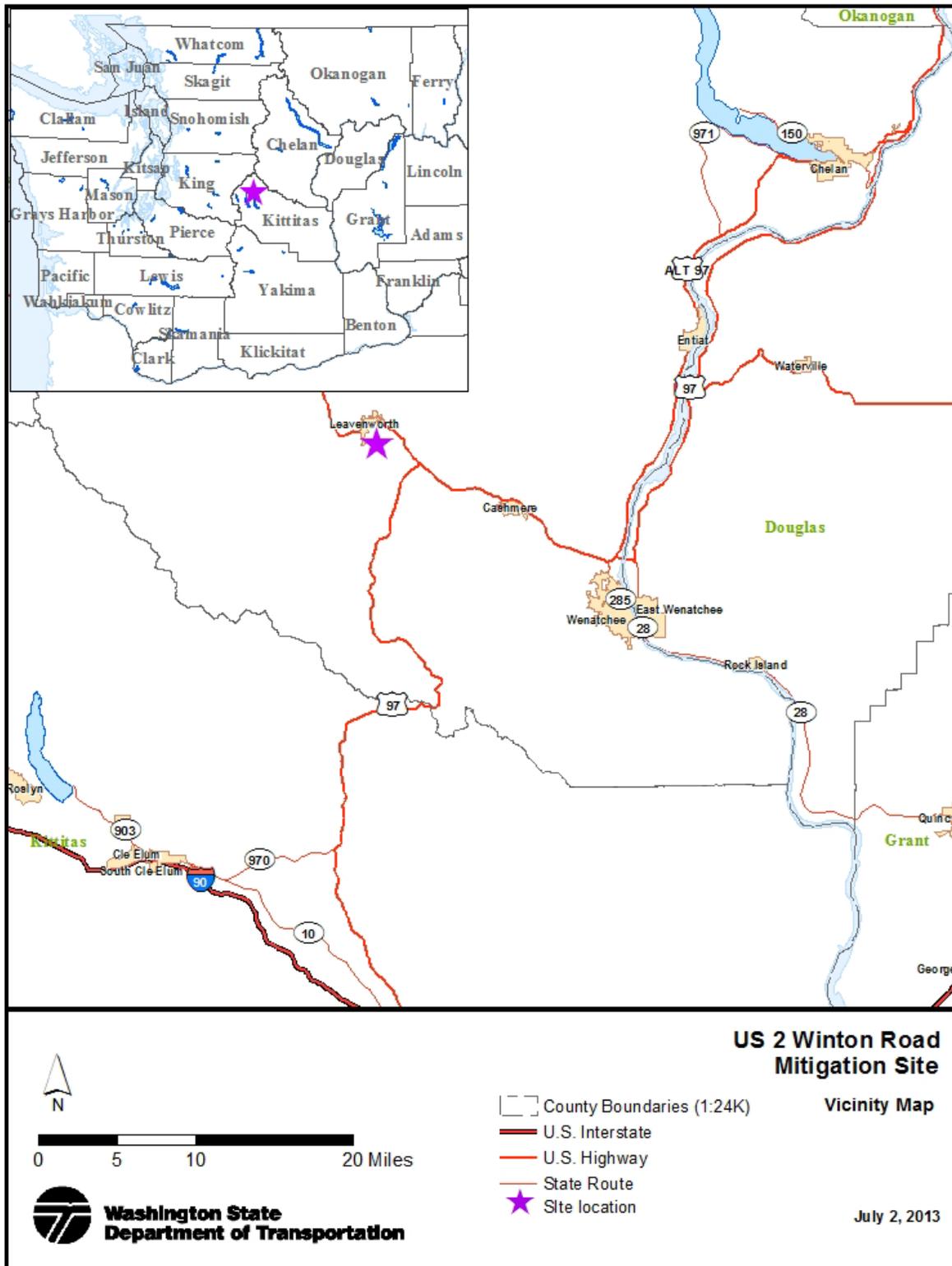


Figure 1. Vicinity Map

# Methods

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Wetland boundaries within the US 2 Winton Road mitigation site was delineated using routine methods described in the:

- Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987), and
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE 2010).

Wetland boundaries were delineated based on on-site observations of hydrology, soils, and plant communities, in conjunction with background information.

A Global Positioning System (GPS) Trimble GeoXT mapping grade unit was used to record the wetland boundaries and sampling point locations (Figure 2). Wetland boundary points were recorded at regular intervals and at any change in direction along the boundary.

## Wetland Delineation and Study Area

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### Study Area

Wetlands described in this report were assessed only within the wetland mitigation site boundary (Figure 2).

### Wetlands

The US 2 Winton Road mitigation site has a variety of habitat types. The center of the site contains a deepwater non-wetland pond designed to enhance fish habitat. The deep water is surrounded by a shallow aquatic bed wetland that connects to a side channel of the Wenatchee River during high water. There is an herbaceous wetland area that dries out in the summer along some of the pond edge. A scrub-shrub community consisting of black hawthorn (*Crataegus douglasii*), golden currant (*Ribes aureum*), redosier dogwood (*Cornus alba*), Nootka rose (*Rosa nutkana*), and Pacific willow (*Salix lasiandra*) is present on the edges of the pond and surrounding the small upland island. The scrub-shrub community grades into a young upland riparian forested on the rest of the site.

The delineation determined 0.65 acre of wetland was present within the boundary of the US 2 Winton Road mitigation site. Delineation data were collected at two sampling points and recorded on wetland determination data forms (Appendix A). Wetland and upland sample points were used to define the wetland edge. Data recorded on the data forms characterize typical wetland and upland conditions observed on site. Vegetation, soils, and hydrology were examined in many additional locations to determine the wetland boundary.

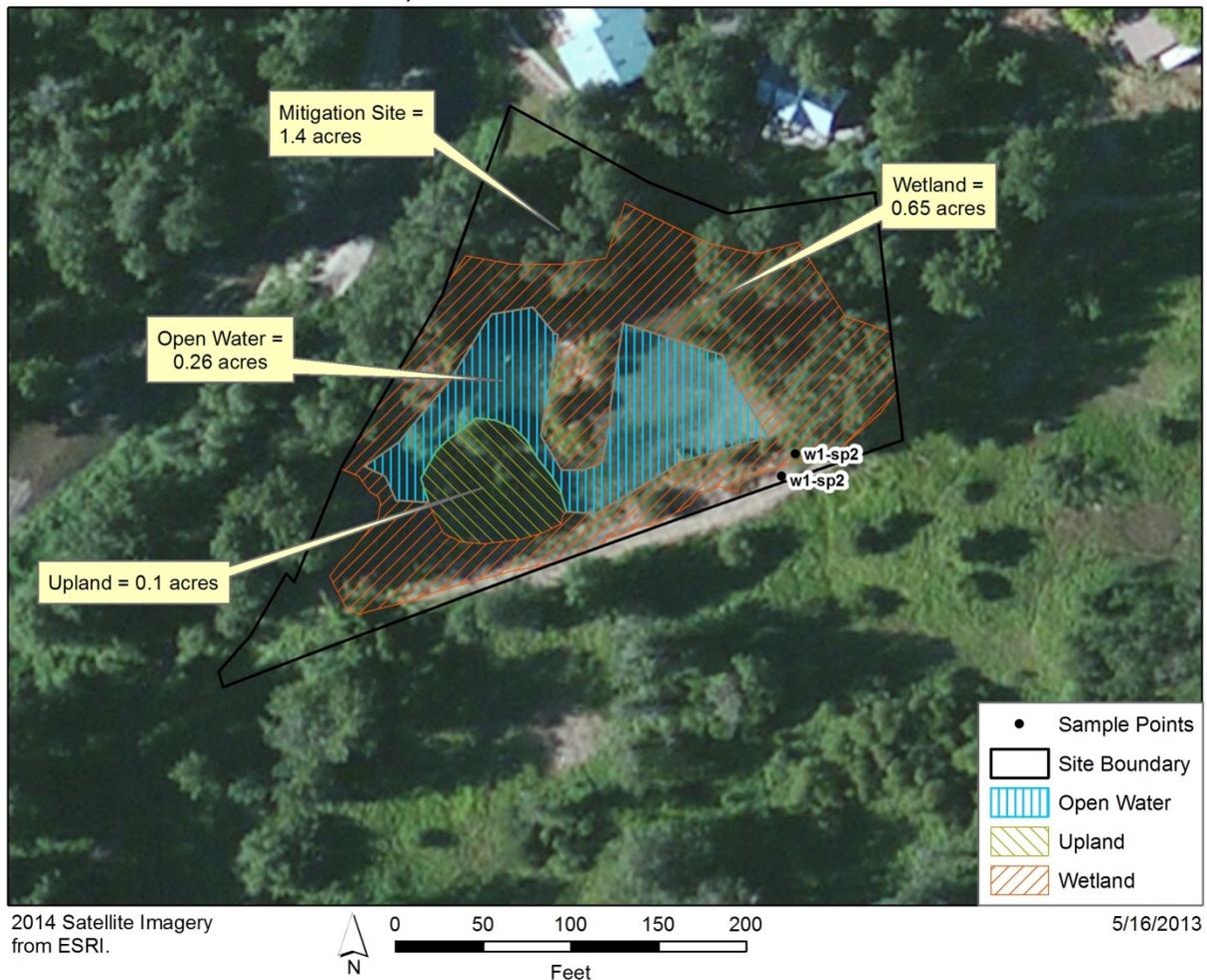
## Precipitation

The Regional Delineation Supplement Version 2.0 (USACE 2010) recommends using methods described in Chapter 19 in *Engineering Field Handbook* (NRCS 1997) to determine if precipitation occurring in the three full months prior to the site visit was normal, drier than normal, or wetter than normal. Actual rainfall is compared to the normal range of the 30-year average. Of the three months prior to field work, April was wetter than normal, March was normal, and February was drier than normal. When considering the three prior months as whole, normal precipitation conditions were present prior to field work (Appendix B-1). Precipitation was not recorded in Leavenworth in the ten days preceding field work (Appendix B-2).

## Growing Season

Field investigators determined the delineation date was within the growing season by observing new vegetative growth on herbaceous species and new leaves on woody species.

### GPS Data -SR 2 Winton Road, 5/15/2013



**Figure 2. Wetland boundary in red, sampling points and site boundary in black.**

US 2 Winton Road mitigation site – Wetland Delineation Summary		
<b>Total Delineated Wetland Area</b>	0.65 acres	
	<b>Wetland Determination Data Form(s)</b>	Appendix A; Sampling Point W1-SP1
	<b>Upland Determination Data Form(s)</b>	Appendix A; Sampling Point W1-SP2
	<b>Delineator(s)</b>	Kristen Andrews Tatiana Dreisbach
	<b>Delineation Date</b>	May 14, 2013
<b>Vegetation</b>	Trees – none Shrubs – black hawthorn ( <i>Crataegus douglasii</i> ), golden currant ( <i>Ribes aureum</i> ), redosier dogwood ( <i>Cornus alba</i> ), Nootka rose ( <i>Rosa nutkana</i> ), and Pacific willow ( <i>Salix lasiandra</i> ). Herbs – reed canarygrass ( <i>Phalaris arundinacea</i> ), spike bentgrass ( <i>Agrostis exarata</i> ), diffuse knapweed ( <i>Centaurea diffusa</i> ), largeleaf avens ( <i>Geum macrophyllum</i> ), curly dock ( <i>Rumex crispus</i> ), arctic rush ( <i>Juncus arcticus</i> ), blue-pod lupine ( <i>Lupinus polyphyllus</i> ), and Dalmatian toadflax ( <i>Linaria dalmatica</i> ). Palustrine aquatic bed vegetation was present in some areas, but was not identified due to water depth and inaccessibility. It is likely that portions of the permanently ponded areas lack aquatic bed vegetation and are therefore palustrine open water.	
<b>Soils</b>	Soils examined to a depth of 18 inches exhibited hydric characteristics. Matrix colors of 2.5Y 3/2 and 10YR 2/2 were observed. Prominent redoximorphic concentrations were observed in the second soil layer. Indicator redox dark surface (F6).	
<b>Hydrology</b>	Surface and subsurface water observed on site is probably directly influenced by the adjacent Wenatchee River in the form of hyporheic flow and occasional overbank flooding.	
<b>Rationale for Delineation</b>	Indicators of the three wetland criteria were present. The wetland boundaries were determined by topography and the presence or absence of indicators of wetland hydrology, hydric soils, and hydrophytic vegetation.	

## Limitations

This wetland delineation report documents the investigation, best professional judgment and conclusions of WSDOT based on the site conditions encountered at the time of this study. The wetland delineation was performed in compliance with accepted standards for professional wetland biologists and applicable federal, state, and local ordinances. It is correct and complete to the best of our knowledge. It should be considered a preliminary jurisdictional determination of wetlands and other waters until it has been reviewed and approved in writing by the appropriate jurisdictional authorities.

# References

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1. Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Vicksburg (MS): US Army Engineer Waterways Experiment Station. Technical Report Y-87-1. Available at: <http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf>
2. Lichvar RW, Kartesz JT. 2012. North American Digital Flora: National Wetland Plant List (US), version 3.0 [Internet]. Hanover (NH): US Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory and Chapel Hill (NC): BONAP. [cited 2013 Jul 15]. Available from: [http://wetland\\_plants.usace.army.mil](http://wetland_plants.usace.army.mil)
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7. [USACE] US Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), Wakeley JS, Lichvar RW, Noble CV, editors. Vicksburg (MS): US Army Engineer Research and Development Center. ERDC/EL TR-10-3. Available at: [http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg\\_supp/west\\_mt\\_finals\\_upp.pdf](http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/west_mt_finals_upp.pdf)
8. [WSDOT] Washington State Department of Transportation. 2003. US 2 Winton Road Wetland Mitigation Plan. Olympia (WA): Washington State Department of Transportation, Environmental Services Office.
9. [WSDOT] Washington State Department of Transportation. 2013. Wetland Delineation and Assessment [Internet]. Olympia (WA): Environmental Services Office. [cited 2013 July 2]. Available at: <http://www.wsdot.wa.gov/Environment/Wetlands/Delineation.htm>

# **Appendix A —Wetland Determination Data Forms**

Wetland Delineation Data Forms for US 2 Winton Road

W1-SP1

W1-SP2

The wetland polygon and sampling point locations are shown in Figure 2.

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

Project/Site: US 2 Winton Road City/County: Leavenworth/Chelan County Sampling Date: 14-May-13  
 Applicant/Owner: wsdot State: wa Sampling Point: w1-sp1  
 Investigator(s): Kristen Andrews, Tatiana Driesbach Section, Township, Range: S 12 T 24N R 17E  
 Landform (hillslope, terrace, etc.): river backwater depression Local relief (concave, convex, none): concave Slope: 10.0 % / 5.7 °  
 Subregion (LRR): LRR A Lat.: 47.584856 Long.: -120.661359 Datum: NAD83HARN  
 Soil Map Unit Name: Leavenworth Fine Sandy Loam NWI classification: PSS

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

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

	Absolute % Cover	Rel.Strat. Cover	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>5 x 15 feet</u> )				<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. _____	_____	<input type="checkbox"/> 0.0%	_____	
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
3. _____	_____	<input type="checkbox"/> 0.0%	_____	
4. _____	_____	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: <u>5 x 15 feet</u> )				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>24</u> x 2 = <u>48</u> FAC species <u>32</u> x 3 = <u>96</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>2</u> x 5 = <u>10</u> Column Totals: <u>58</u> (A) <u>154</u> (B)  Prevalence Index = B/A = <u>2.655</u>
1. <u>Crataegus douglasii</u>	10	<input checked="" type="checkbox"/> 31.3%	FAC	
2. <u>Ribes aureum</u>	5	<input type="checkbox"/> 15.6%	FAC	
3. <u>Cornus alba</u>	2	<input type="checkbox"/> 6.3%	FACW	
4. <u>Rosa nutkana</u>	10	<input checked="" type="checkbox"/> 31.3%	FAC	
5. <u>Salix lasiandra</u>	5	<input type="checkbox"/> 15.6%	FACW	
32 = Total Cover				
<b>Herb Stratum</b> (Plot size: <u>5 x 5 feet</u> )				
1. <u>Phalaris arundinacea</u>	10	<input checked="" type="checkbox"/> 38.5%	FACW	
2. <u>Agrostis exarata</u>	2	<input type="checkbox"/> 7.7%	FACW	
3. <u>Juncus arcticus</u>	5	<input checked="" type="checkbox"/> 19.2%	FACW	
4. <u>Lupinus polyphyllus</u>	5	<input checked="" type="checkbox"/> 19.2%	FAC	
5. <u>Linaria dalmatica</u>	1	<input type="checkbox"/> 3.8%	UPL	
6. <u>Centaurea diffusa</u>	1	<input type="checkbox"/> 3.8%	UPL	
7. <u>Geum macrophyllum</u>	1	<input type="checkbox"/> 3.8%	FAC	
8. <u>Rumex crispus</u>	1	<input type="checkbox"/> 3.8%	FAC	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
11. _____	0	<input type="checkbox"/> 0.0%	_____	
26 = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: <u>5 x 5 feet</u> )				
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>% Bare Ground in Herb Stratum:</b> <u>74</u>				
Remarks:				

**Hydrophytic Vegetation Indicators:**  
 1 - Rapid Test for Hydrologic Vegetation  
 2 - Dominance Test is > 50%  
 3 - Prevalence Index is ≤ 3.0<sup>1</sup>  
 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 5 - Wetland Non-Vascular Plants<sup>1</sup>  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes  No

\*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**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>				
0-1	2.5Y	3/2	100					Sandy Loam	With gravel and cobble	
1-18	10YR	2/2	90	7.5YR	4/6	10	C	M/PL	concentrations are prominent	

<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 in 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 Muck 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 (minimum of two 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 on Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
Water Table Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): <input type="text" value="12"/>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): <input type="text" value="6"/>	

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

Remarks:

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

Project/Site: US 2 Winton Road City/County: Leavenworth/Chelan County Sampling Date: 14-May-13  
 Applicant/Owner: wsdot State: wa Sampling Point: w1-sp2  
 Investigator(s): Kristen Andrews, Tatiana Driesbach Section, Township, Range: S 12 T 24N R 17E  
 Landform (hillslope, terrace, etc.): river backwater depression Local relief (concave, convex, none): concave Slope: 10.0 % / 5.7 °  
 Subregion (LRR): LRR A Lat.: 47.584856 Long.: -120.661359 Datum: NAD83HARN  
 Soil Map Unit Name: Leavenworth Fine Sandy Loam NWI classification: Upland

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

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

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	
<b>Tree Stratum</b> (Plot size: 5 x 15 feet )				<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>7</u> (B)  Percent of dominant Species That Are OBL, FACW, or FAC: <u>57.1%</u> (A/B)
1. _____	_____	<input type="checkbox"/> 0.0%	_____	
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
3. _____	_____	<input type="checkbox"/> 0.0%	_____	
4. _____	_____	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: 5 x 15 feet )				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: <b>OBL species</b> <u>0</u> x 1 = <u>0</u> <b>FACW species</b> <u>25</u> x 2 = <u>50</u> <b>FAC species</b> <u>6</u> x 3 = <u>18</u> <b>FACU species</b> <u>34</u> x 4 = <u>136</u> <b>UPL species</b> <u>5</u> x 5 = <u>25</u> <b>Column Totals:</b> <u>70</u> (A) <u>229</u> (B)  Prevalence Index = B/A = <u>3.271</u>
1. <u>Ribes aureum</u>	2	<input checked="" type="checkbox"/> 20.0%	FAC	
2. <u>Rosa nutkana</u>	2	<input checked="" type="checkbox"/> 20.0%	FAC	
3. <u>Spiraea betulifolia</u>	2	<input checked="" type="checkbox"/> 20.0%	FACU	
4. <u>Amelanchier alnifolia</u>	2	<input checked="" type="checkbox"/> 20.0%	FACU	
5. <u>Crataegus douglasii</u>	2	<input checked="" type="checkbox"/> 20.0%	FAC	
10 = Total Cover				
<b>Herb Stratum</b> (Plot size: 5 x 5 feet )				
1. <u>Phalaris arundinacea</u>	20	<input checked="" type="checkbox"/> 33.3%	FACW	
2. <u>Festuca idahoensis</u>	10	<input type="checkbox"/> 16.7%	FACU	
3. <u>Rumex acetosella</u>	15	<input checked="" type="checkbox"/> 25.0%	FACU	
4. <u>Achillea millefolium</u>	3	<input type="checkbox"/> 5.0%	FACU	
5. <u>Poa bulbosa</u>	5	<input type="checkbox"/> 8.3%	UPL	
6. <u>Verbascum thapsus</u>	2	<input type="checkbox"/> 3.3%	FACU	
7. <u>Juncus arcticus</u>	5	<input type="checkbox"/> 8.3%	FACW	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
11. _____	0	<input type="checkbox"/> 0.0%	_____	
60 = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: 5 x 15 feet )				
1. _____	_____	<input type="checkbox"/> 0.0%	_____	
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>% Bare Ground in Herb Stratum:</b> <u>40</u>				
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrologic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is > 50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>				
Remarks:				

\*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**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>		
0-16	10YR	2/1	100				Sandy Loam	Soil contains 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

<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 in 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 Muck 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:  
 No indicator met.

**Hydrology**

**Wetland Hydrology Indicators:**

<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (minimum of two 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 on 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 <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	<b>Wetland Hydrology Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	

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

Remarks:  
 No Hydrology present

# Appendix B — Precipitation Data

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## Appendix B-1. Comparison of Observed and Normal Precipitation (NRCS 1997)

Monthly precipitation data for Leavenworth, Washington for the US 2 Winton Road Delineation on May 14, 2013.

	Long-term rainfall records <sup>a</sup>			Rain fall <sup>b</sup>	Condition dry, wet, normal <sup>c</sup>	Condition Value	Month weight value	Product of previous two columns	
	Month	3 yrs. in 10 less than	Average						3 yrs. in 10 more than
1 <sup>st</sup> prior month	Apr	0.6	1.1	1.34	2.15	W	3	3	9
2 <sup>nd</sup> prior month	Mar	1.28	2.07	2.51	1.97	N	2	2	4
3 <sup>rd</sup> prior month	Feb	2.09	3.39	4.10	0.59	D	1	1	1
							<b>Sum</b>	<b>14</b>	

<sup>a</sup> NRCS 2002

<sup>b</sup> NOAA 2013

<sup>c</sup> Conditions are considered normal if they fall within the low and high range around the average.

**Note: If sum is**

- 6 - 9 then prior period has been drier than normal
- 10 - 14 then period has been normal
- 15 - 18 then period has been wetter than normal

**Condition value:**

- Dry (D) =1
- Normal (N) =2
- Wet (W) =3

Conclusions: Normal precipitation conditions were present prior to the field visit.

## Appendix B-2. Daily Precipitation 10 days preceding field work, Leavenworth, Washington

### US 2 Winton Road Delineation on May 14, 2013.

Date (2013)	Daily Precipitation (inches) <sup>a</sup>
May 13	0.00
May 12	0.00
May 11	0.00
May 10	0.00
May 9	0.00
May 8	0.00
May 7	0.00
May 6	0.00
May 5	0.00
May 4	0.00

<sup>a</sup> NOAA 2013

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

**WETLAND RATING FORM –EASTERN 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): US 2 Winton Road

Date of site visit: 11/12/2014

Rated by: D. Littauer

Trained by Ecology?  Yes  No

Date of training: 6/11/2014

SEC: 12

TWNSHP: 24N

RNGE: 17E

Is S/T/R in Appendix D?  Yes  No

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

Estimated size 0.7 ac

**SUMMARY OF RATING**

Category based on FUNCTIONS provided by wetland:  I  II  III  IV

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

Score for "Water Quality" Functions

**12**

Score for Hydrologic Functions

**16**

Score for Habitat Functions

**32**

TOTAL score for Functions

**60**

Category based on SPECIAL CHARACTERISTICS of Wetland:  I  II  III

Does not Apply

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

**II**

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

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

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

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

Check List for Wetlands that Need Special and that are Not Included in the Rating	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

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

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

### Classification of Vegetated Wetlands for Eastern Washington

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

1. Does the entire wetland unit **meet both** of the following criteria?
- The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) in size;
- At least 30% of the open water area is deeper than 3 m (10 ft)?
- NO – go to Step 2       YES – The wetland class is **Lake-fringe (lacustrine fringe)**
- 
2. Does the 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than a foot deep).*
- NO – go to Step 3       YES – The wetland class is **Slope**
- 
3. Is the wetland unit in a valley or stream channel where it gets inundated by overbank flooding from that stream or river? In general, the flooding should occur at least once every ten years to answer “yes”. *The wetland can contain depressions that are filled with water when the river is not flooding.*
- NO – go to Step 4       YES – The wetland class is **Riverine**
- 
4. Is the wetland unit in a topographic depression, outside areas that are inundated by overbank flooding, in which water ponds, or is saturated to the surface, at some time of the year. *This means that any outlet, if present is higher than the interior of the wetland.*
- NO – go to Step 5       YES – The wetland class is **Depressional**
- 
5. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

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

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

Question SP1: Upper Columbia River Chinook and steelhead distinct population segments (DPS) and bull trout have presumed presence (WDFW 2013) in the reach of the Wenatchee River that is connected via a side channel to the mitigation site.

Question SP3: The Wenatchee River has been identified as a shoreline of State-wide Significance (SWS) (SHORELINE MASTER PROGRAM for Shorelines in the City of Leavenworth and its UGA of Chelan County).







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

	<p>H 2.3 Near or adjacent to other priority habitats listed by WDFW (<i>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></i>). Which of the following priority habitats are within 330ft (100m) of the wetland unit?  <i>NOTE: the connections to the habitats can be disturbed.</i></p> <p><input checked="" 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 (may include urban or urban growth areas) (<i>full descriptions in WDFW PHS report p. 152</i>).</p> <p><input type="checkbox"/> <b>Eastside Steppe:</b> Non-forested vegetation type dominated by broadleaf herbaceous flora(i.e., forbs), perennial bunchgrasses, or a combination of both (<i>full description of species found here in WDFW PHS report p. 153</i>).</p> <p><input type="checkbox"/> <b>Old-growth/Mature forests (east of Cascade crest):</b> (<i>full descriptions in WDFW PHS report p. 157</i>). Old-growth: Stands are &gt; 150 yrs in age; may be variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. Mature: Stands 80 – 160 yrs old. Decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</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 type="checkbox"/> <b>Juniper Savannah:</b> All juniper woodlands (<i>SE part of state only; check map</i>)</p> <p><input type="checkbox"/> <b>Shrub-steppe:</b> A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).</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>Inland Dunes</b> This placeholder is for a new priority habitat that will capture areas known as Inland Dunes. A definition will be developed later in Fall 2008. (<i>check WDFW web site</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>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; 30 cm (12 in) in eastern 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 style="text-align: right;">If wetland has <b>2 or more</b> Priority Habitats = <b>4 points</b>          If wetland has <b>1</b> Priority Habitat = <b>2 points</b>          No Priority habitats = <b>0 points</b></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 H 2.4)</i></p>	4
	<p>H 2.4 <u>Landscape:</u> Choose the <b>one</b> description of the landscape around the wetland that best fits. (<i>see p. 76</i>)</p> <ul style="list-style-type: none"> <li>• The wetland unit is in an area where annual rainfall is less than 12 inches, and its water regime is not influenced by irrigation practices, dams, or water control structures. (<i>Generally, this means outside boundaries of reclamation areas, irrigation district, or reservoirs.</i>)..... points = 5 <input type="checkbox"/></li> <li>• There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing in the connection or an open water connection along a lake shore without heavy boat traffic are OK, but connections should NOT be bisected by paved roads, fill, fields, heavy boat traffic or other development. .... points = 5 <input checked="" type="checkbox"/></li> <li>• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .... points = 2 <input type="checkbox"/></li> <li>• There is at least 1 wetland within 1/2 mile ..... points = 1 <input type="checkbox"/></li> <li>• Does not meet any of the four criteria above ..... points = 0 <input type="checkbox"/></li> </ul>	5
<b>H 2 TOTAL Score – opportunity for providing habitat</b> <i>Add the scores in the columns above</i>		<b>17</b>
<b>H 3 Does the wetland unit have indicators that its ability to provide habitat is reduced?</b>		
	<p>H 3.1 <u>Indicator of reduced habitat functions</u> (<i>see p. 75</i>)          Do the areas of open water in the wetland unit have a resident population of carp (see text for indicators of the presence of carp)? Note: <i>This question does not apply to reservoirs with water levels controlled by dams, such as the reservoirs on the Columbia and Snake Rivers.</i></p> <p style="text-align: center;"><input type="checkbox"/> <b>YES = 5 points</b>                      <input type="checkbox"/> <b>NO = 0 points</b></p>	<i>Points will be subtracted</i> 0
<b>◆ Total Score for Habitat Functions</b> <i>Add the points for H 1, H 2 and H 3; and record the result on p. 1</i>		<b>32</b>

Comments: \_\_\_\_\_

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

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

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

Wetland Type – Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	
<b>SC1</b>	<p><b>Vernal pools</b> (see p.79)</p> <p>Is the wetland unit <b>less than 4,000 ft<sup>2</sup></b>, and does it meet at least <b>two</b> of the following criteria?</p> <p><input type="checkbox"/> Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input.</p> <p><input type="checkbox"/> Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>NOTE: If you find perennial, “obligate”, wetland plants the wetland is probably NOT a vernal pool.</i></p> <p><input type="checkbox"/> The soil in the wetland are shallow (&lt;1 ft. deep (30cm) and is underlain by an impermeable layer such as basalt or clay.</p> <p><input type="checkbox"/> Surface water is present for less than 120 days during the “wet” season.</p> <p style="text-align: center;"><input type="checkbox"/> <b>YES</b> = Go to SC 1.1      <input type="checkbox"/> <b>NO</b> not a vernal pool</p>
	<p>SC 1.1 Is the vernal pool relatively undisturbed in February and March?</p> <p style="text-align: center;"><input type="checkbox"/> <b>YES</b> = Go to SC 1.2      <input type="checkbox"/> <b>NO</b> = not a vernal pool with special characteristics</p>
	<p>SC 1.2 Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 miles (other wetlands, rivers, lakes etc.)?</p> <p style="text-align: center;"><input type="checkbox"/> <b>YES</b> = Category II      <input type="checkbox"/> <b>NO</b> = Category III</p> <p style="text-align: right;"><input type="checkbox"/> <b>Cat. II</b> <input type="checkbox"/> <b>Cat. III</b></p>
<b>SC2</b>	<p><b>Alkali wetlands</b> (see p.81)</p> <p>Does the wetland unit meet <b>one</b> of the following two criteria?</p> <p><input type="checkbox"/> The wetland has a conductivity &gt; 3.0 mS/cm.</p> <p><input type="checkbox"/> The wetland has a conductivity between 2.0 – 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as “alkali” species (see Table 2 for list of plants found in alkali systems).</p> <p><input type="checkbox"/> If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt.</p> <p><b>OR</b> does the wetland meet <b>two</b> of the following three sub-criteria?</p> <p><input type="checkbox"/> Salt encrustations around more than 80% of the edge of the wetland.</p> <p><input type="checkbox"/> More than 3/4 of the plant cover consists of species listed on Table 2.</p> <p><input type="checkbox"/> A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands.</p> <p style="text-align: center;"><input type="checkbox"/> <b>YES</b> = Category I      <input type="checkbox"/> <b>NO</b> – not an alkali wetland</p> <p style="text-align: right;"><b>Cat. I</b> <input type="checkbox"/></p>
<b>SC3</b>	<p><b>Natural Heritage Wetlands</b> (see p. 82)</p> <p>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 3.1 Is the wetland unit being rated in a Section/Township/Range that contains a natural heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.)</p> <p>S/T/R information from Appendix D <input type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/></p> <p style="text-align: center;"><b>YES</b> <input type="checkbox"/> Contact WNHP/DNR (see p. 79) and go to SC 3.2      <b>NO</b> <input type="checkbox"/></p> <p>SC 3.2 Has DNR identified the wetland unit as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?</p> <p style="text-align: center;"><input type="checkbox"/> <b>YES</b> = Category I      <input type="checkbox"/> <b>NO</b> – not a natural heritage wetland</p> <p style="text-align: right;"><b>Cat. I</b> <input type="checkbox"/></p>

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

<p><b>SC4</b></p>	<p><b>Bogs</b> (see p. 82)          Does the wetland unit (<b>or any part of the wetland unit</b>) meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>SC 4.1 Does the wetland have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.)  <input type="checkbox"/> <b>YES</b> = go to SC 4.3      <input type="checkbox"/> <b>NO</b> = go to SC 4.2</p> <p>SC 4.2 Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?  <input type="checkbox"/> <b>YES</b> = go to 4.3      <input type="checkbox"/> <b>NO</b> = Is not a bog for rating</p> <p>SC 4.3 Does the wetland have more than 70% cover of mosses at ground level in any area within its boundaries, 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)?  <input type="checkbox"/> <b>YES</b> = Category I bog      <input type="checkbox"/> <b>NO</b> = go to question 4.4</p> <p>NOTE: <i>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.</i></p> <p>SC 4.4 Is the unit, or any part of it, 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)?  <input type="checkbox"/> <b>YES</b> = Category 1 bog      <input type="checkbox"/> <b>NO</b></p>	<p><b>Cat. I</b>  <input type="checkbox"/></p>
<p><b>SC5</b></p>	<p><b>Forested Wetlands</b> (see p. 85)          Does the wetland unit have an area of forest (<i>you should have identified a forested class, if present, in question H 1.1</i>) rooted within its boundary that meet <b>at least one</b> of the following three criteria?  <input type="checkbox"/> The wetland is within the “100 year” floodplain of a river or stream.  <input type="checkbox"/> Aspen (<i>Populus tremuloides</i>) are a dominant or co-dominant of the “woody” vegetation. (<i>Dominants means it represents at least 50% of the cover of woody species, co-dominant means it represents at least 20% of the total cover of woody species.</i>)  <input type="checkbox"/> There is at least 1/4 acre of trees (even in wetlands smaller than 2.5 acres) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (see p. 83).  <input type="checkbox"/> <b>YES</b> = go to SC 5.1      <input type="checkbox"/> <b>NO</b> – not a forested wetland with special characteristics</p>	
	<p>SC 5.1 Does the wetland unit have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees? Slow growing trees are: western red cedar (<i>Thuja plicata</i>), Alaska yellow cedar (<i>Chamaecyparis nootkatensis</i>), pine spp. mostly “white” pine (<i>Pinus monticola</i>), western hemlock (<i>Tsuga heterophylla</i>), Englemann spruce (<i>Picea engelmannii</i>)?  <input type="checkbox"/> <b>YES</b> = Category I      <input type="checkbox"/> <b>NO</b> = go to SC 5.2</p>	<p><b>Cat. I</b>  <input type="checkbox"/></p>
	<p>SC 5.2 Does the unit have areas where aspen (<i>Populus tremuloides</i>) as a dominant or co-dominant species?  <input type="checkbox"/> <b>YES</b> = Category I      <input type="checkbox"/> <b>NO</b> = go to SC 5.3</p>	<p><b>Cat. I</b>  <input type="checkbox"/></p>
	<p>SC 5.3 Does the wetland unit have a forest canopy where more than 50% of the tree species (by cover) are fast growing species? Fast growing species are: Alders – red (<i>alnus rubra</i>), thin-leaf (<i>A. tenuifolia</i>); Cottonwoods – narrow-leaf (<i>Populus angustifolia</i>), black (<i>P. balsamifera</i>); Willows – peach-leaf (<i>Salix amygdaloides</i>), Sitka (<i>S. sitchensis</i>), Pacific (<i>S. lasiandra</i>), Aspen – <i>Populus tremuloides</i>, Water Birch (<i>Betula occidentalis</i>)  <input type="checkbox"/> <b>YES</b> = Category II      <input type="checkbox"/> <b>NO</b> = go to SC 5.5</p>	<p><b>Cat. II</b>  <input type="checkbox"/></p>
	<p>SC 5.5 Is the forested component of the wetland within the “100 year floodplain” of a river or stream?  <input type="checkbox"/> <b>YES</b> = Category II</p>	<p><b>Cat. II</b>  <input type="checkbox"/></p>
<p>◆</p>	<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the “highest” rating if wetland falls into several categories. If you answered NO for all types enter “Not Applicable” on p. 1</i></p>	<p>_____</p>

## Literature Cited

1. Bell, David. 2005. US 2 Winton Road Mitigation Site As-built Planting Plan. Washington State Department of Transportation, North Central Region, Olympia, WA.
2. Haddaway, Brent. 2003. US 2 Winton Road Wetland Mitigation Plan. Washington State Department of Transportation, North Central Region, Olympia, WA.
3. [USACE] US Army Corps of Engineers. 2003. Department of the Army Nationwide Permit (14 and 23) 2003-01285.
4. [WSDOT] Washington State Department of Transportation. 2008. WSDOT Wetland Mitigation Site Monitoring Methods. <http://www.wsdot.wa.gov/NR/rdonlyres/C211AB59-D5A2-4AA2-8A76-3D9A77E01203/0/MethodsWhitePaper052004.pdf>