

**HARVEY FIELD AIRPORT**  
SNOHOMISH, WA



*Foundation  
for the Future*

# **APPENDIX I**

# **WETLAND DELINEATION STUDY**

# WETLAND DELINEATION STUDY

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## Harvey Field Master Plan

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April 2015

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130507

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**Cite this document as:**  
The Watershed Company. April 2015. Wetland  
Delineation Study - Harvey Field Master Plan.

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# WETLAND DELINEATION STUDY

## HARVEY FIELD MASTER PLAN

### 1 EXECUTIVE SUMMARY

This report presents the findings of a wetland delineation study performed by The Watershed Company for Aviation, Inc. on behalf of the Harvey Field Airport. This effort is part of the environmental review process for the Harvey Field Master Plan, a document that will guide future development at Harvey Field Airport.

This wetland delineation study identifies wetlands present in the study area and evaluates regulatory implications. The study area can be seen on Figure 1. The following table lists the parcels reviewed under this delineation. In addition to examining the study area, an area outside the study area but on airport property was reviewed since wetlands are mapped in that location by the National Wetland Inventory (NWI). A total of three wetlands were identified; however, only one was delineated south of the airport since improvements to this area are the focus of the Master Plan. Snohomish County requires buffers to be applied to the delineated boundary of these features. Any proposed direct impacts to wetlands would require permitting from local, state, and federal agencies. Impacts to associated buffers of these features would also be regulated by Snohomish County.

Table 1: Snohomish County Tax Parcels Reviewed for this Study

Snohomish County Parcel Number	Size (acres)	Notes and limitations
28051300401900	14.81	WSDOT parcel; NW airport corner reconnaissance only - not delineated
28051300402000	23.00	WSDOT parcel; NW airport corner reconnaissance only - not delineated

28052400100300	9.02	Delineation covers parcel areas south of Airport Way only
28052400100800	13.01	Delineation covers parcel areas south of Airport Way only.
28052400100900	0.90	Delineation covers parcel areas south of Airport Way only.
28052400101000	2.46	Delineation covers parcel areas south of Airport Way only.
28052400101100	1.00	Spurling property - not in study area.
28052400101400	1.78	Delineation covers parcel areas south of Airport Way only.
28052400101600	11.59	Delineation covers parcel areas south of Airport Way only.
28052400101700	14.00	Delineation covers parcel areas south of Airport Way only.
28052400102000	2.34	WSDOT parcel. Delineation covers parcel areas south and east of Airport Way only.
28052400102100	4.18	Delineation covers parcel areas south of Airport Way only.
28052400102200	6.45	Delineation covers parcel areas south of Airport Way only.
28052400102300	10.16	Delineation covers parcel areas south of Airport Way only.
28052400102400	10.15	Delineation covers parcel areas south of Airport Way only.
28052400102500	10.10	Delineation covers parcel areas south of Airport Way only.
28052400102600	16.35	Delineation covers parcel areas

		south of Airport Way only.
28052400400100	12.45	Delineation covers parcel areas south of Airport Way only.
28052400400600	1.4	Delineation covers entire parcel
28052400400700	2.77	WSDOT parcel. Delineation covers parcel areas east of Springhetti Road only.
28052400402000	0.38	WSDOT parcel. Delineation covers entire parcel
28052400402100	5.78	Delineation covers entire parcel
28052400402200	6.11	Delineation covers entire parcel
28052400402300	1.33	Delineation covers entire parcel

## 2 PROJECT OVERVIEW

Harvey Field Airport is undergoing development of a new Master Plan. The document is required by the Federal Aviation Administration so that the airport may remain eligible for federal grant funds. The document will also provide guidance for future development over a 20-year period. One of the requisites for an airport master plan is an environmental inventory and review.

Harvey Field is located at 9900 Airport Way, Snohomish County (Figure 1). From Hwy 9, take the exit toward Snohomish. Turn east onto 2nd Street (0.2 mi), and then turn slightly right to turn onto 1st Street (0.4 mi). Turn right on Airport Way and continue for 0.2 miles.

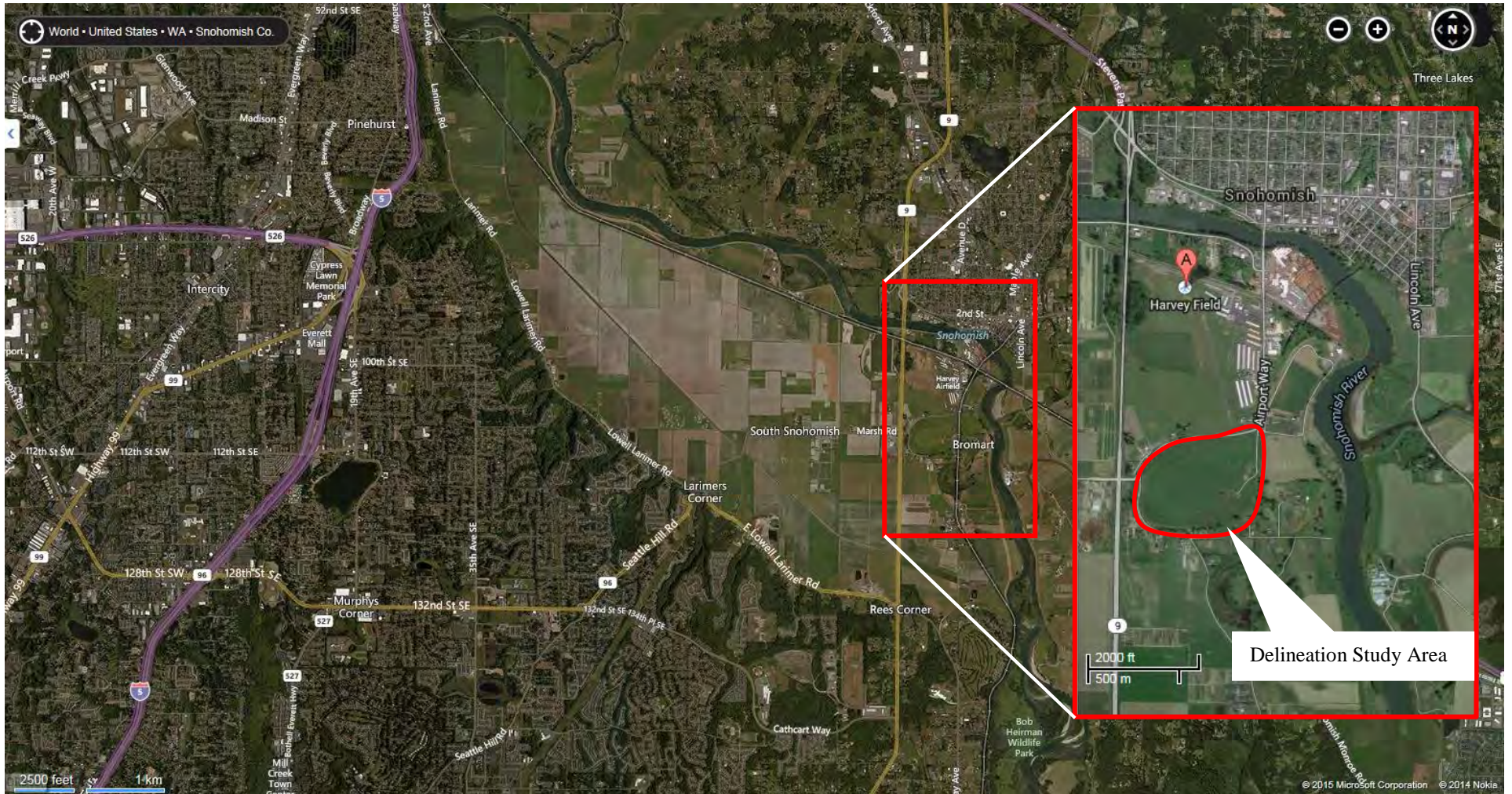


Figure 1. Vicinity Map, Harvey Field Airport. Bing Maps 2015 (background) and Google Maps 2015 (close-up).

## 3 METHODS

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The study area was evaluated for wetlands using methodology from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (Regional Supplement) (US Army Corps of Engineers [Corps] May 2010). The wetland boundaries were determined on the basis of an examination of vegetation, soils, and hydrology. Areas meeting the criteria set forth in the Regional Supplement were determined to be wetland. Soil, vegetation, and hydrologic parameters were sampled at several locations along the wetland boundary to make the determination. Data points on-site are marked with yellow- and black-striped flags. We recorded data at nine of these locations. Only Wetland A (see below) was delineated as part of this study.

Delineated, or otherwise verified wetlands, were classified using the *Western Washington Wetland Rating System 2014 Update* (Ecology, January 2015) (Rating System). Wetland A is marked with 378 pink- and black-striped flags.

All delineation flags were GPS-located using a hand-held Trimble Geo-XH unit. Following field location, the GPS data was differentially correcting using GPS Pathfinder Office Program and imported into AutoCAD for mapping.

## 4 FINDINGS

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The Harvey Field Airport and the entire study area is located in the Snohomish Water Resource Inventory Area (WRIA 7) (Section 24, Township 28N, Range 5E). The delineation study area is located on the site of a large, actively-farmed hayfield south of Harvey Field on the south side of Airport Way and east/northeast of Springhetti Road. The interior of the study area is topographically higher than the perimeter, which is the location of a former oxbow (previously known as Hanson Slough) associated with the Snohomish River. One single-family residence, an associated garage, and a barn are located in the delineation study area.



Figure 2: NWI Map of Project Vicinity

## 4.1 Wetland A

According to NWI maps, the entirety of the former oxbow is identified as wetland. A large depressional wetland, Wetland A, is located across much of the former oxbow, although this delineation study documents the current extent of the wetland as being smaller than what is indicated on the NWI maps. Wetland A occupies much of the northern, western, and southern portions of the delineation study area. Vegetation in the wetland is mostly composed of an emergent Cowardin vegetation community dominated by soft rush, pasture grasses, creeping buttercup, and invasive reed canarygrass. The prevalence of soft rush, a facultative-wetland (FACW) species, within the wetland boundary transitions into a dominance of facultative (FAC) pasture grasses outside of the wetland boundary. A scrub-shrub fringe is present along the southern boundary of the wetland. The indicator soil in Wetland A is typically a high value (4), low chroma (1) loamy mineral soil with redoximorphic features (RMF) present. The soil observed in Wetland A satisfies the criteria for the hydric soil indicator Depleted Matrix (F3). The soil in areas outside of the wetland boundary are typically chroma (2) sandy loam/loamy sand with no RMF present. This soil

characteristic was occasionally observed in non-wetland areas that exhibited soil saturation or shallow ponding during flood events (see below).

## 4.2 Hydrology

Hydrology for Wetland A is provided by a variety of sources, including a seasonally high groundwater table, precipitation, and backwatering from the Snohomish River, which is tidally influenced at this location. Based on a review of historic aerial photographs, some degree of ditching has been present in Wetland A since at least 1933. Presently, a ditch is located through the entirety of Wetland A. While the ditch was presumably created to drain Wetland A as part of on-going agricultural activities at the site, it currently functions as an inlet and an outlet for floodwaters in the wetland. At a date uncertain, the original connection to the Snohomish River eliminated, and the drainage ditch was connected via an approximately 1,100-foot-long culvert to Batt Slough, which drains through a series of open channel segments and culverts to the Snohomish River. Historically, a one-way flap valve was located at the end of the lowermost Batt Slough culvert outlet, where it discharged into the Snohomish River. The valve prevented Snohomish River water from flowing into Batt Slough and the Wetland A drainage ditch (and, by association, Wetland A) during high tides and/or storm events. With the one-way valve properly functioning, much of Wetland A, specifically the northern portions, was effectively drained, eliminating wetland conditions. The lack of wetland hydrology in the northern portions of Wetland A was documented in a 2008 wetland delineation report, *Wetland Assessment Report, Harvey Airfield Master Plan Update, Snohomish, Washington* (Talasaea Consultants, Inc., March 2008) (Talasaea Report). The Talasaea Report recorded groundwater levels at 23 shallow groundwater monitoring wells throughout the drained portions of Wetland A. The results consistently supported the conclusion that these areas no longer exhibited soil saturation within the upper 12 inches of the soil during the growing season.

In 2009-2010, the one-way valve was replaced with a two-valve that can be electronically controlled to allow tidally-influenced water fluctuations and moderate flood events to backwater into Batt Slough, the Wetland A drainage ditch, and Wetland A. The valve is closed during severe flood events to protect properties and resources.

Since Wetland A is connected to Batt Slough via the drainage ditch/culvert, during periods of elevated river levels (i.e., winter/spring high tides and significant rain events), significant flooding is periodically present throughout Wetland A, and shallow flooding is occasionally present in non-wetland areas adjacent to Wetland A – areas that were observed as completely dry during high tide only days before a significant flood event. These water level fluctuations make the wetland functionally unsuitable to native amphibian breeding.

The delineation of Wetland A was conducted over several days during January-February 2015, including during periods of normal precipitation (including high tide) and during periods when the Snohomish River was above flood stage. Given the highly fluctuating water levels in and around Wetland A, daily hydrology observations along portions of the wetland boundary were determined to be somewhat unreliable. Many areas in which shallow inundation is present during flood events do not exhibit soil saturation when river levels recede. Therefore, it was determined that these areas are not saturated for 14 consecutive days during the growing season in years of normal precipitation. The location of the jurisdictional wetland boundary was more accurately determined by examining soil and vegetation.

The entire length of the Wetland A drainage ditch was delineated as jurisdictional wetland. Ditches that were intentionally created from non-wetland areas are not regulated as wetlands under the Snohomish County Code (SCC). However, the drainage ditch currently satisfies wetland criteria and was excavated from an area of historic wetland and is, therefore, considered a wetland for regulatory purposes.

### **4.3 Habitat**

The one-way valve was replaced with a fish-passable two-way valve, primarily, to improve water quality and fish habitat in Batt Slough. However, fish cannot access the Wetland A drainage ditch due to an impassible fish screen at the opening of the 1,100-foot-long culvert. Additionally, the water quality in Wetland A is likely too poor to support fish, particularly salmonid fish. Stormwater from SR-9 discharges directly into the drainage ditch, leaving an obvious petroleum sheen on the water surface. Additionally, the lack of canopy cover in the wetland may elevate water temperatures to ranges that are unfavorable to salmonid fish.



Figure 3: Wetland A on 12/29/14 during normal conditions at high tide (left). Wetland A on 1/8/2015 when Snohomish River was at flood stage (right).



Figure 4: Wetland A on 12/29/14 during normal conditions at high tide (left). Wetland A on 1/8/15 when Snohomish River was at flood stage (right).

#### 4.4 Wetland B

Wetland B, which was not delineated as part of this study, is a depressional wetland located on the main airport property. Wetland B has an exclusively-emergent Cowardin vegetation community dominated by a reed canarygrass monoculture. Hydrology for Wetland B is provided by a perched groundwater table and is supplemented by precipitation. Approximately one foot of ponding was present in Wetland B during the inspection. A drainage ditch connects the southwest corner of Wetland B to a larger drainage ditch that is located adjacent

to SR-9. However, as evidenced by the degree of inundation observed during the inspection, the drainage ditch does not effectively drain the wetland.



Figure 5: Wetland B, facing east.

## 4.5 Wetland C

Wetland C, which was not delineated as part of this study, is a depressional wetland located near the northwest corner of the main airport property. Wetland C is depicted on NWI mapping, although the extent of the wetland is less than indicated on the NWI maps. Wetland C supports a forested Cowardin vegetation community dominated by black cottonwood, Douglas spirea, salmonberry, red-osier dogwood, Pacific willow, and reed canarygrass. Hydrology for Wetland C is provided by a high groundwater table and is likely supplemented by incidental stormwater runoff from the adjacent SR-9. More than one foot of inundation was present in much of Wetland C during the inspection.



Figure 6: Wetland C, facing west.

## 5 REGULATION

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### 5.1 Local Regulations

Wetlands in Snohomish County are regulated under SCC 30.62A. Under SCC, wetlands are classified as one of four categories based on the Rating System. Snohomish County plans on updating its critical areas regulations, which currently utilize the 2004 Rating System, to adopt the 2014 Rating System. This change is expected to occur sometime in mid-2015. Therefore, the 2014 Rating System was used to classify wetlands.

According to the 2014 Rating System, Wetland A received seven points for water quality functions, six points for hydrologic functions, and four points for wildlife habitat functions, for a total of 17 points. This score qualifies Wetland A as a Category III wetland. Wetland B received six points for water quality functions, six points for hydrologic functions, and three points for wildlife habitat functions, for a total of 15 points. This score qualifies Wetland B as a Category IV wetland. Wetland C received seven points for water quality functions, seven points for hydrologic points, and three points for wildlife habitat functions, for a total of 17 points. This score qualifies Wetland C as a Category III wetland.

Wetland buffers in Snohomish County are determined based a combination of the wetland category and the intensity of the adjacent land use. The current land

use in the delineation study area is moderate-intensity agriculture (hayfield) and low-density residential. These land uses do not meet the criteria for “high intensity” or “low intensity.” Therefore, the standard buffer width for Category III wetlands applies to Wetland A. Similarly, Wetlands B and C, while located on the airport property, are more than 800 feet away from the airport operations and are located in a separate zoning area (A-10). Areas zoned for agriculture are not permitted for industrial land uses. Consequently, the “adjacent” land use does not meet the definition of “high intensity,” resulting in the application of the standard buffer widths.

As mentioned, the Snohomish County critical areas regulations are currently being updated to reflect the revisions to the Rating System. The current regulations will likely no longer be in effect by the time local permits for the proposed project are applied for. Therefore, the 2014 Rating System, which may be implemented in Snohomish County as early as June 2015, is referenced in this document. The updated 2014 Rating System uses a different scoring system to classify wetlands than the previous 2004 Rating System. The effect that the 2014 Rating System will have on wetland buffer widths has not been finalized. The most recent draft regulations would require a standard buffer width of 110 feet for all Category III wetlands (i.e., Wetlands A and C). The draft regulations have not proposed buffer widths for Category IV wetlands. Therefore, we can only provide the current standard buffer width for Category IV wetlands, which is 40 feet [SCC 32.62A.320.1(a)]. Table 2 below summarizes the draft widths the County has proposed utilizing the 2014 Rating System.

Table 2: Draft Buffer Widths\*

Wetland	Category	Draft Standard Buffer Width
Wetland A	III	110-ft
Wetland B	IV	New widths currently undecided (current buffer width is 40-ft)
Wetland C	III	110-ft

\*Per Snohomish County Memorandum: *Critical Area Regulations Review and Update* 2/11/2015

### Allowed Uses

There are certain structures or facilities permitted within wetlands and wetland buffers. These include utilities and transportation structures, provided there is

no feasible alternative or the alternative would result in unreasonable or disproportionate costs. In addition, the location and design of such structures must be designed so as to minimize impacts as much as feasible. Other activities allowed within wetlands and wetland buffers include stormwater detention/retention facilities, access and pedestrian walkways, vegetation trimming, and reconstruction or replacement of existing buildings provided the new building does not encroach further into the critical area or buffer than did the original building. A maximum one acre of wetland fill is allowed (SCC 30.62A.320(2) and 30.62A.340).

Under SCC 30.62A.340(4), direct wetland impacts to Category III wetlands, such as those associated with the potential relocation of Airport Way, require compensatory mitigation at an area ratio of 2:1 for wetland creation and 4:1 for wetland enhancement. In addition, the study area is located within the service area for both the Skykomish Habitat Mitigation Bank and the Snohomish Basin Mitigation Bank. Unavoidable wetland impacts can be mitigated by purchasing credits at the bank (SCC 30.62A.550).

## 6 STATE AND FEDERAL REGULATIONS

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Wetlands are also regulated by the Corps under Section 404 of the Clean Water Act. Any filling of waters of the U.S., including wetlands (except isolated wetlands), would require notification and permits from the Corps. It is unlikely that any of the study area wetlands would be considered isolated. A formal isolated status inquiry can be requested from the Corps through the Jurisdictional Determination process. Federally permitted actions; actions that involve federal agencies, such as the Federal Aviation Administration; and/or actions that receive federal funding must document the potential effects of the project on threatened and endangered species through the preparation of a biological assessment study and consultation with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service. Application for Corps permits may also require an individual 401 Water Quality Certification and Coastal Zone Management Consistency determination from Ecology and a Cultural Resource Study in accordance with Section 106 of the National Historic Preservation Act.

In general, neither the Corps nor Ecology regulates wetland buffers, unless direct impacts are proposed. When direct impacts are proposed, mitigated wetlands may be required to employ buffers based on Corps and Ecology joint regulatory guidance.

The use of a mitigation bank is generally the preferred mitigation alternative for wetland impacts under the jurisdiction of the Corps and Ecology.

The information contained in this report is based on the application of technical guidelines currently accepted as the best available science. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available to us at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, State and Federal regulatory authorities. No other warranty, expressed or implied, is made.

# REFERENCES

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Snohomish County Planning and Development Services. February 11, 2015.  
Memorandum: Critical Areas Regulations Review and Update.

Talasaesa Consultants, Inc. March 2008. Wetland Assessment Report, Harvey Airfield  
Master Plan Update, Snohomish, Washington.

U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers  
Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region  
Version 2.0.

Washington Department of Ecology. January 2015. Western Washington Wetland  
Rating System 2014 Update.



**APPENDIX A**

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**Wetland A Delineation Map**



# CRITICAL AREAS MAP FOR HARVEY FIELD



TWC #130507



### MAP LEGEND

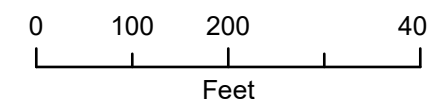
- Data Point
- Delineated Wetland
- Draft Snohomish County Regulatory Buffer (110')

Wetland was delineated by The Watershed Company between December 29, 2014 and February 10, 2015. Site is not surveyed and all features are located by Trimble GeoXH GPS

Wetland boundaries were delineated using methodology from the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0

Date: 3/27/2015  
Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

1 inch = 200 feet





**APPENDIX B**

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**Wetland Determination Data Forms**





**WETLAND DETERMINATION DATA FORM**  
 Western Mountains, Valleys, and Coast Supplement to the  
 1987 COE Wetlands Delineation Manual

750 Sixth Street South  
 Kirkland, Washington 98033  
 (425) 822-5242  
 watershedco.com

DP- 1

Project Site: <b>Harvey Field</b>		Sampling Date: <b>12/17/2014</b>
Applicant/Owner: <b>Jviation, Inc</b>		Sampling Point: <b>DP- 1</b>
Investigator: <b>Nell Lund, Ryan Kahlo</b>		City/County: <b>Snohomish County</b>
Sect., Township, Range: <b>S 24 T 28N R 5E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>terrace</b>	Slope (%): <b>&lt;5%</b>	Local relief (concave, convex, none): <b>slightly concave</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>Sultan silt loam</b>	Datum:	
Soil Map Unit Name: <b>Sultan silt loam</b>		NWI classification: <b>none listed</b>
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? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampling Point within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <a href="#">Click here to enter text.</a>		

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

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>1</b> (A)	
2.					
3.					
4.					
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>1</b> (B)	
				Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)	
Sapling/Shrub Stratum (Plot size: 3m diam.)				Prevalence Index Worksheet	
1.				Total % Cover of <span style="float:right">Multiply by</span>	
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)
Herb Stratum (Plot size: 1m diam.)				Prevalence Index = B / A =	
1. <b>Meadow grasses</b>	<b>100</b>	<b>Y</b>	<b>FAC</b>		
2.					
3.					
4.					
5.				<b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance test is > 50% <input type="checkbox"/> Prevalence test is ≤ 3.0 * Morphological Adaptations * (provide supporting data in remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants * <input type="checkbox"/> Problematic Hydrophytic Vegetation * (explain)	
6.					
7.					
8.					
9.				* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
10.					
11.					
<b>100</b> = Total Cover					
Woody Vine Stratum (Plot size: )				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1.					
2.					
_____ = Total Cover					
% Bare Ground in Herb Stratum:					
Remarks: <a href="#">Click here to enter text.</a>					

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)																																
Depth (inches)	Matrix		Redox Features				Texture	Remarks																								
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>																										
0-16	2.5Y 3/2	100					Silty loam																									
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Remarks: <a href="#">Click here to enter text.</a>																																

**HYDROLOGY**

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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																																				
Remarks: <b>Damp ~ 14" below ground surface, not saturated</b>																																				



**WETLAND DETERMINATION DATA FORM**  
 Western Mountains, Valleys, and Coast Supplement to the  
 1987 COE Wetlands Delineation Manual

750 Sixth Street South  
 Kirkland, Washington 98033  
 (425) 822-5242  
 watershedco.com

DP- 2

Project Site: <b>Harvey Field</b>		Sampling Date: <b>12/17/2014</b>
Applicant/Owner: <b>Jviation, Inc</b>		Sampling Point: <b>DP- 2</b>
Investigator: <b>Nell Lund, Ryan Kahlo</b>		City/County: <b>Snohomish County</b>
Sect., Township, Range: <b>S 24 T 28N R 5E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>terrace</b>	Slope (%): <b>none</b>	Local relief (concave, convex, none): <b>none</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>Puget silty clay loam</b>	Datum:	
Soil Map Unit Name: <b>Puget silty clay loam</b>		NWI classification: <b>PEMA</b>
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? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampling Point within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: <a href="#">Click here to enter text.</a>			

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

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>1</b> (A)																					
2.																									
3.																									
4.																									
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>1</b> (B)																					
				Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)																					
Sapling/Shrub Stratum (Plot size: 3m diam.)				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>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </table>	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)
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UPL species		x 5 =																							
Column totals	(A)	(B)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover				Prevalence Index = B / A =																					
Herb Stratum (Plot size: 1m diam.)				Hydrophytic Vegetation Indicators																					
1. <b>Meadow grass</b>	<b>90</b>	<b>Y</b>	<b>FAC</b>	<input checked="" type="checkbox"/> Dominance test is > 50% <input type="checkbox"/> Prevalence test is ≤ 3.0 * Morphological Adaptations * (provide supporting data in remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants * <input type="checkbox"/> Problematic Hydrophytic Vegetation * (explain)																					
2. <b>Juncus effusus</b>	<b>20</b>	<b>N</b>	<b>FACW</b>																						
3. <b>Ranunculus repens</b>	<b>20</b>	<b>N</b>	<b>FAC</b>																						
4. <b>Trifolium repens</b>	<b>5</b>	<b>N</b>	<b>FAC</b>																						
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
_____ <b>135</b> = Total Cover				* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic																					
Woody Vine Stratum (Plot size: )				Hydrophytic Vegetation Present?																					
1.				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																					
2.																									
_____ = Total Cover																									
% Bare Ground in Herb Stratum:																									
Remarks: <a href="#">Click here to enter text.</a>																									

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)																																
Depth (inches)	Matrix		Redox Features				Texture	Remarks																								
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>																										
0-14	2.5Y 4/1	75	10YR 3/4	25	C	M	Silty clay loam																									
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**HYDROLOGY**

<p><b>Wetland Hydrology Indicators:</b>  <i>Primary Indicators (minimum of one required: check all that apply):</i></p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Surface water (A1)</td> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Water-Stained Leaves (except MLRA 1, 2, 4A &amp; 4B) (B9)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Salt Crust (B11)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Aquatic Invertebrates (B13)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Surface Soil Cracks (B6)</td> <td><input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (explain in remarks)</td> </tr> </table>				<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)	<p><i>Secondary Indicators (2 or more required):</i></p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A &amp; 4B)</td> </tr> <tr> <td><input type="checkbox"/> Drainage Patterns (B10)</td> </tr> <tr> <td><input type="checkbox"/> Dry-Season Water Table (C2)</td> </tr> <tr> <td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td> </tr> <tr> <td><input type="checkbox"/> Geomorphic Position (D2)</td> </tr> <tr> <td><input type="checkbox"/> Shallow Aquitard (D3)</td> </tr> <tr> <td><input type="checkbox"/> FAC-Neutral Test (D5)</td> </tr> <tr> <td><input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)</td> </tr> <tr> <td><input type="checkbox"/> Frost-Heave Hummocks</td> </tr> </table>		<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
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																																		
Remarks: <b>Top 1/2" wet from current rain, dry below</b>																																		



**WETLAND DETERMINATION DATA FORM**  
 Western Mountains, Valleys, and Coast Supplement to the  
 1987 COE Wetlands Delineation Manual

750 Sixth Street South  
 Kirkland, Washington 98033  
 (425) 822-5242  
 watershedco.com

**DP- 3**

Project Site: <b>Harvey Field</b>		Sampling Date: <b>12/17/2014</b>
Applicant/Owner: <b>Jviation, Inc</b>		Sampling Point: <b>DP- 3</b>
Investigator: <b>Nell Lund, Ryan Kahlo</b>		City/County: <b>Snohomish County</b>
Sect., Township, Range: <b>S 24 T 28N R 5E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>Terrace</b>	Slope (%): <b>Click</b>	Local relief (concave, convex, none): <b>Concave</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>Puget silty clay loam</b>	Datum:	
Soil Map Unit Name: <b>Puget silty clay loam</b>		NWI classification: <b>PEMC</b>
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? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampling Point within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: <a href="#">Click here to enter text.</a>			

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

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>3</b> (A)	
2.					
3.					
4.					
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>3</b> (B)	
_____ = Total Cover				Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)	
Sapling/Shrub Stratum (Plot size: 3m diam.)				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 =	
_____ = Total Cover				UPL species   x 5 =	
_____ = Total Cover				Column totals (A)   (B)	
Herb Stratum (Plot size: 1m diam.)				Prevalence Index = B / A =	
1. <b><i>Phalaris arundinacea</i></b>	<b>25</b>	<b>Y</b>	<b>FACW</b>		
2. <b><i>Juncus effusus</i></b>	<b>50</b>	<b>Y</b>	<b>FACW</b>	<b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance test is > 50% <input type="checkbox"/> Prevalence test is ≤ 3.0 * Morphological Adaptations * (provide supporting data in remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants * <input type="checkbox"/> Problematic Hydrophytic Vegetation * (explain)	
3. <b><i>Meadow grass</i></b>	<b>40</b>	<b>Y</b>	<b>FAC</b>		
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
<b>105</b> = Total Cover					* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
Woody Vine Stratum (Plot size: )				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1.					
2.					
_____ = Total Cover					
% Bare Ground in Herb Stratum:					
Remarks: <a href="#">Click here to enter text.</a>					

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)																												
Depth (inches)	Matrix		Redox Features				Texture	Remarks																				
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>																						
0-14	2.5Y 4/1	70	7.5YR 3/4	30	C	M, PL	Silty clay loam																					
<p><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</p> <p><b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b></p> <table style="width:100%; border:none;"> <tr> <td><input type="checkbox"/> Histosol (A1)</td> <td><input type="checkbox"/> Sandy Redox (S5)</td> </tr> <tr> <td><input type="checkbox"/> Histic Epipedon (A2)</td> <td><input type="checkbox"/> Stripped Matrix (S6)</td> </tr> <tr> <td><input type="checkbox"/> Black Histic (A3)</td> <td><input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)</td> </tr> <tr> <td><input type="checkbox"/> Hydrogen Sulfide (A4)</td> <td><input type="checkbox"/> Loamy Gleyed Matrix (F2)</td> </tr> <tr> <td><input type="checkbox"/> Depleted Below Dark Surface (A11)</td> <td><input checked="" type="checkbox"/> Depleted Matrix (F3)</td> </tr> <tr> <td><input type="checkbox"/> Thick Dark Surface (A12)</td> <td><input type="checkbox"/> Redox Dark Surface (F6)</td> </tr> <tr> <td><input type="checkbox"/> Sandy Mucky Mineral (S1)</td> <td><input type="checkbox"/> Depleted Dark Surface (F7)</td> </tr> <tr> <td><input type="checkbox"/> Sandy Gleyed Matrix (S4)</td> <td><input type="checkbox"/> Redox Depressions (F8)</td> </tr> </table> <p><b>Indicators for Problematic Hydric Soils<sup>3</sup></b></p> <table style="width:100%; border:none;"> <tr> <td><input type="checkbox"/> 2cm Muck (A10)</td> </tr> <tr> <td><input type="checkbox"/> Red Parent Material (TF2)</td> </tr> <tr> <td><input type="checkbox"/> Other (explain in remarks)</td> </tr> <tr> <td><input type="checkbox"/> </td> </tr> </table> <p><sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic</p>									<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 checked="" 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)	<input type="checkbox"/> 2cm Muck (A10)	<input type="checkbox"/> Red Parent Material (TF2)	<input type="checkbox"/> Other (explain in remarks)	<input type="checkbox"/>
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Restrictive Layer (if present): Type: _____ Depth (inches): _____						<b>Hydric soil present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																						
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<p>Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:</p>																																				
<p>Remarks: <b>Can squeeze water out/ damp, not saturated. On-site at high tide. Left pit open for 1 hour, no change, no water</b></p>																																				

DP-4

Project Site: <b>Harvey Field</b>		Sampling Date: <b>12/17/2014</b>
Applicant/Owner: <b>Jviation, Inc</b>		Sampling Point: <b>DP- 4</b>
Investigator: <b>Nell Lund, Ryan Kahlo</b>		City/County: <b>Snohomish County</b>
Sect., Township, Range: <b>S 24 T 28N R 5E</b>		State: <b>WA</b>
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Soil Map Unit Name: <b>Puget silty clay loam</b>	Datum:	
Soil Map Unit Name: <b>Puget silty clay loam</b>		NWI classification: <b>PEMA</b>
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?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampling Point within a Wetland?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <a href="#">Click here to enter text.</a>			

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

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>2</b> (A)
2.				
3.				
4.				
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>2</b> (B)
_____ = Total Cover				Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)
Sapling/Shrub Stratum (Plot size: 3m diam.)				<b>Prevalence Index Worksheet</b> Total % Cover of _____ Multiply by _____
1.				
2.				
3.				
4.				
5.				
_____ = Total Cover				OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column totals (A) _____ (B) _____
Herb Stratum (Plot size: 1m diam.)				Prevalence Index = B / A = _____
1.	<b>Juncus effusus</b>	<b>50</b>	<b>Y</b> <b>FACW</b>	
2.	<b>Meadow grasses</b>	<b>80</b>	<b>Y</b> <b>FAC</b>	<b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance test is > 50% <input type="checkbox"/> Prevalence test is ≤ 3.0 * Morphological Adaptations * (provide supporting data in remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants * <input type="checkbox"/> Problematic Hydrophytic Vegetation * (explain)
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
_____ <b>130</b> _____ = Total Cover				
Woody Vine Stratum (Plot size: _____ )				
1.				
2.				
_____ = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
% Bare Ground in Herb Stratum:				
Remarks: <a href="#">Click here to enter text.</a>				

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	5Y 4/1	80	10YR 3/6	20	C	PL, M	Clay 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)
- Sandy Redox (S5)
- Histic Epipedon (A2)
- Stripped Matrix (S6)
- Black Histic (A3)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Hydrogen Sulfide (A4)
- Loamy Gleyed Matrix (F2)
- Depleted Below Dark Surface (A11)
- Depleted Matrix (F3)
- Thick Dark Surface (A12)
- Redox Dark Surface (F6)
- Sandy Mucky Mineral (S1)
- Depleted Dark Surface (F7)
- Sandy Gleyed Matrix (S4)
- Redox Depressions (F8)

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

- 2cm 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: [Click here to enter text.](#)

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?    Yes     No     Depth (in):    **2" ABG**

Water Table Present?    Yes     No     Depth (in):    **0" +**

Saturation Present?    Yes     No     Depth (in):    **0" +**  
(includes capillary fringe)

Wetland Hydrology Present?    Yes     No

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

Remarks:    **ABG = above ground**



**WETLAND DETERMINATION DATA FORM**  
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 1987 COE Wetlands Delineation Manual

750 Sixth Street South  
 Kirkland, Washington 98033  
 (425) 822-5242  
 watershedco.com

DP- 5

Project Site: <b>Harvey Field</b>		Sampling Date: <b>1/28/2015</b>
Applicant/Owner: <b>Jviation, Inc</b>		Sampling Point: <b>DP- 5</b>
Investigator: <b>Ryan Kahlo, Nell Lund</b>		City/County: <b>Snohomish County</b>
Sect., Township, Range: <b>S 24 T 28N R 5E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>hillslope</b>	Slope (%): <b>&lt;5%</b>	Local relief (concave, convex, none): <b>convex</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>Sultan silt loam</b>		Datum:
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		NWI classification: <b>none listed</b> (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?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Hydric Soils Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampling Point within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: <a href="#">Click here to enter text.</a>			

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

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>1</b> (A)																					
2.																									
3.																									
4.																									
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>1</b> (B)																					
				Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)																					
Sapling/Shrub Stratum (Plot size: 3m diam.)				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>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </table>	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)
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)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover				Prevalence Index = B / A =																					
Herb Stratum (Plot size: 1m diam.)																									
1.	<b>Mowed meadow grass*</b>	<b>95</b>	<b>Y</b> <b>FAC</b>																						
2.	<b>Phalaris arundinacea</b>	<b>7</b>	<b>N</b> <b>FACW</b>																						
3.																									
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
_____ <b>102</b> = Total Cover				<b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance test is > 50% <input type="checkbox"/> Prevalence test is ≤ 3.0 * Morphological Adaptations * (provide supporting data in remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants * <input type="checkbox"/> Problematic Hydrophytic Vegetation * (explain)																					
Woody Vine Stratum (Plot size: )																									
1.																									
2.																									
_____ = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																					
% Bare Ground in Herb Stratum:																									
Remarks: <b>*assumed FAC</b>																									

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)																																
Depth (inches)	Matrix		Redox Features				Texture	Remarks																								
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>																										
0-14	2.5Y 3/3	100					Gravelly sandy loam																									
<p><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</p> <p><b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b></p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Histosol (A1)</td> <td><input type="checkbox"/> Sandy Redox (S5)</td> <td><input type="checkbox"/> 2cm Muck (A10)</td> </tr> <tr> <td><input type="checkbox"/> Histic Epipedon (A2)</td> <td><input type="checkbox"/> Stripped Matrix (S6)</td> <td><input type="checkbox"/> Red Parent Material (TF2)</td> </tr> <tr> <td><input type="checkbox"/> Black Histic (A3)</td> <td><input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)</td> <td><input type="checkbox"/> Other (explain in remarks)</td> </tr> <tr> <td><input type="checkbox"/> Hydrogen Sulfide (A4)</td> <td><input type="checkbox"/> Loamy Gleyed Matrix (F2)</td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> Depleted Below Dark Surface (A11)</td> <td><input type="checkbox"/> Depleted Matrix (F3)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Thick Dark Surface (A12)</td> <td><input type="checkbox"/> Redox Dark Surface (F6)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Sandy Mucky Mineral (S1)</td> <td><input type="checkbox"/> Depleted Dark Surface (F7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Sandy Gleyed Matrix (S4)</td> <td><input type="checkbox"/> Redox Depressions (F8)</td> <td></td> </tr> </table> <p><sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic</p>									<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2cm 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"/>	<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)	
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<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)																														
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<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)																															
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<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)																															
Restrictive Layer (if present): Type: _____ Depth (inches): _____						<b>Hydric soil present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																										
Remarks: <a href="#">Click here to enter text.</a>																																

**HYDROLOGY**

<p><b>Wetland Hydrology Indicators:</b>  <i>Primary Indicators (minimum of one required: check all that apply):</i></p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Surface water (A1)</td> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Water-Stained Leaves (except MLRA 1, 2, 4A &amp; 4B) (B9)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Salt Crust (B11)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Aquatic Invertebrates (B13)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Surface Soil Cracks (B6)</td> <td><input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (explain in remarks)</td> </tr> </table>				<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)	<p><i>Secondary Indicators (2 or more required):</i></p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A &amp; 4B)</td> </tr> <tr> <td><input type="checkbox"/> Drainage Patterns (B10)</td> </tr> <tr> <td><input type="checkbox"/> Dry-Season Water Table (C2)</td> </tr> <tr> <td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td> </tr> <tr> <td><input type="checkbox"/> Geomorphic Position (D2)</td> </tr> <tr> <td><input type="checkbox"/> Shallow Aquitard (D3)</td> </tr> <tr> <td><input type="checkbox"/> FAC-Neutral Test (D5)</td> </tr> <tr> <td><input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)</td> </tr> <tr> <td><input type="checkbox"/> Frost-Heave Hummocks</td> </tr> </table>				<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
<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)																																			
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<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)																																			
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<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)																																				
<input type="checkbox"/> Frost-Heave Hummocks																																				
<p><b>Field Observations</b></p> <table style="width:100%;"> <tr> <td>Surface Water Present?</td> <td>Yes <input type="checkbox"/></td> <td>No <input checked="" type="checkbox"/></td> <td>Depth (in):</td> </tr> <tr> <td>Water Table Present?</td> <td>Yes <input type="checkbox"/></td> <td>No <input checked="" type="checkbox"/></td> <td>Depth (in):</td> </tr> <tr> <td>Saturation Present? (includes capillary fringe)</td> <td>Yes <input type="checkbox"/></td> <td>No <input checked="" type="checkbox"/></td> <td>Depth (in):</td> </tr> </table>				Surface Water Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (in):	Water Table Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (in):	Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (in):	<p><b>Wetland Hydrology Present?</b>    Yes <input type="checkbox"/>    No <input checked="" type="checkbox"/></p>																				
Surface Water Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (in):																																	
Water Table Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (in):																																	
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (in):																																	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																																				
Remarks: <a href="#">Click here to enter text.</a>																																				



**WETLAND DETERMINATION DATA FORM**  
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750 Sixth Street South  
 Kirkland, Washington 98033  
 (425) 822-5242  
 watershedco.com

DP- 6

Project Site: <b>Harvey Field</b>		Sampling Date: <b>1/28/2015</b>
Applicant/Owner: <b>Jviation, Inc</b>		Sampling Point: <b>DP- 6</b>
Investigator: <b>Ryan Kahlo, Nell Lund</b>		City/County: <b>Snohomish County</b>
Sect., Township, Range: <b>S 24 T 28N R 5E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>terrace</b>	Slope (%): <b>none</b>	Local relief (concave, convex, none): <b>none</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>Puget silty clay loam</b>		NWI classification: <b>Palustrine Scrub-shrub (PSSC)</b>
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? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Is the Sampling Point within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <a href="#">Click here to enter text.</a>		

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

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

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)																																
Depth (inches)	Matrix		Redox Features				Texture	Remarks																								
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>																										
0-14	2.5Y 3/2.5	100					Loamy fine sand																									
<p><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</p> <p><b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b></p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Histosol (A1)</td> <td><input type="checkbox"/> Sandy Redox (S5)</td> <td><input type="checkbox"/> 2cm Muck (A10)</td> </tr> <tr> <td><input type="checkbox"/> Histic Epipedon (A2)</td> <td><input type="checkbox"/> Stripped Matrix (S6)</td> <td><input type="checkbox"/> Red Parent Material (TF2)</td> </tr> <tr> <td><input type="checkbox"/> Black Histic (A3)</td> <td><input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)</td> <td><input type="checkbox"/> Other (explain in remarks)</td> </tr> <tr> <td><input type="checkbox"/> Hydrogen Sulfide (A4)</td> <td><input type="checkbox"/> Loamy Gleyed Matrix (F2)</td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> Depleted Below Dark Surface (A11)</td> <td><input type="checkbox"/> Depleted Matrix (F3)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Thick Dark Surface (A12)</td> <td><input type="checkbox"/> Redox Dark Surface (F6)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Sandy Mucky Mineral (S1)</td> <td><input type="checkbox"/> Depleted Dark Surface (F7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Sandy Gleyed Matrix (S4)</td> <td><input type="checkbox"/> Redox Depressions (F8)</td> <td></td> </tr> </table> <p><sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic</p>									<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2cm 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"/>	<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)	
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Restrictive Layer (if present): Type: _____ Depth (inches): _____					<b>Hydric soil present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																											
Remarks: <a href="#">Click here to enter text.</a>																																

**HYDROLOGY**

<p><b>Wetland Hydrology Indicators:</b>  <i>Primary Indicators (minimum of one required: check all that apply):</i></p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Surface water (A1)</td> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Water-Stained Leaves (except MLRA 1, 2, 4A &amp; 4B) (B9)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Salt Crust (B11)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Aquatic Invertebrates (B13)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Surface Soil Cracks (B6)</td> <td><input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (explain in remarks)</td> </tr> </table>				<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)	<p><i>Secondary Indicators (2 or more required):</i></p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A &amp; 4B)</td> </tr> <tr> <td><input type="checkbox"/> Drainage Patterns (B10)</td> </tr> <tr> <td><input type="checkbox"/> Dry-Season Water Table (C2)</td> </tr> <tr> <td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td> </tr> <tr> <td><input type="checkbox"/> Geomorphic Position (D2)</td> </tr> <tr> <td><input type="checkbox"/> Shallow Aquitard (D3)</td> </tr> <tr> <td><input type="checkbox"/> FAC-Neutral Test (D5)</td> </tr> <tr> <td><input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)</td> </tr> <tr> <td><input type="checkbox"/> Frost-Heave Hummocks</td> </tr> </table>				<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
<input type="checkbox"/> Surface water (A1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																			
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<input type="checkbox"/> Frost-Heave Hummocks																																				
<p><b>Field Observations</b></p> Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): _____ Water Table Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): _____ Saturation Present? (includes capillary fringe)    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): _____				<p><b>Wetland Hydrology Present?</b>    Yes <input type="checkbox"/>    No <input checked="" type="checkbox"/></p>																																
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																																				
Remarks: <b>Top moist, no saturation.</b>																																				



**WETLAND DETERMINATION DATA FORM**  
 Western Mountains, Valleys, and Coast Supplement to the  
 1987 COE Wetlands Delineation Manual

750 Sixth Street South  
 Kirkland, Washington 98033  
 (425) 822-5242  
 watershedco.com

**DP-7**

Project Site: <b>Harvey Field</b>		Sampling Date: <a href="#">Click here to enter a date.</a>
Applicant/Owner: <b>Jviation, Inc</b>		Sampling Point: <a href="#">DP- Click here to enter text.</a>
Investigator: <b>Ryan Kahlo, Nell Lund</b>		City/County: <b>Snohomish County</b>
Sect., Township, Range: <b>S 24 T 28N R 5E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>hillslope</b>	Slope (%): <b>~5%</b>	Local relief (concave, convex, none): <b>none</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>Puget silty clay loam</b>	Datum:	
Soil Map Unit Name: <b>Puget silty clay loam</b>		NWI classification: <b>Palustrine Emergent (PEMA)</b>
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<b>Flood conditions / above average at time of visit</b>
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		(If needed, explain any answers in Remarks.)
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input checked="" type="checkbox"/> naturally problematic		

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Hydric Soils Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampling Point within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Paired with DP4;</b>			

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

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1.				Number of Dominant Species that are OBL, FACW, or FAC:	<b>1</b> (A)
2.				Total Number of Dominant Species Across All Strata:	<b>1</b> (B)
3.				Percent of Dominant Species that are OBL, FACW, or FAC:	<b>100</b> (A/B)
4.					
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size: 3m diam.)				Prevalence Index Worksheet	
1.				Total % Cover of	
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 =
_____ = Total Cover				Column totals	(A) (B)
Herb Stratum (Plot size: 1m diam.)				Prevalence Index = B / A =	
1. <b>Meadow grass (Poa sp.)</b>	<b>70</b>	<b>Y</b>	<b>FAC</b>		
2. <b>Plantago lanceolata</b>	<b>5</b>	<b>N</b>	<b>FACU</b>		
3. <b>Trifolium repens</b>	<b>5</b>	<b>N</b>	<b>FAC</b>		
4. <b>Taraxacum officinale</b>	<b>2</b>	<b>N</b>	<b>FACU</b>		
5.					
6.					
7.					
8.					
9.					
10.					
11.					
<b>82</b> = Total Cover				<input checked="" type="checkbox"/> Dominance test is > 50% <input type="checkbox"/> Prevalence test is ≤ 3.0 * Morphological Adaptations * (provide supporting data in remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants * <input type="checkbox"/> Problematic Hydrophytic Vegetation * (explain)	
Woody Vine Stratum (Plot size: )	* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic				
1.					
2.					
_____ = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
% Bare Ground in Herb Stratum:					
Remarks: <b>Moss ~ 30%</b>					

**SOIL**

**Sampling Point – DP-7**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)																																
Depth (inches)	Matrix		Redox Features				Texture	Remarks																								
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>																										
0-14	2.5Y 3/2	100					Loamy sand																									
14-16	2.5Y 3/2	100					sand																									
<p><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</p> <p><b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b></p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Histosol (A1)</td> <td><input type="checkbox"/> Sandy Redox (S5)</td> <td><input type="checkbox"/> Indicators for Problematic Hydric Soils<sup>3</sup></td> </tr> <tr> <td><input type="checkbox"/> Histic Epipedon (A2)</td> <td><input type="checkbox"/> Stripped Matrix (S6)</td> <td><input type="checkbox"/> 2cm Muck (A10)</td> </tr> <tr> <td><input type="checkbox"/> Black Histic (A3)</td> <td><input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)</td> <td><input type="checkbox"/> Red Parent Material (TF2)</td> </tr> <tr> <td><input type="checkbox"/> Hydrogen Sulfide (A4)</td> <td><input type="checkbox"/> Loamy Gleyed Matrix (F2)</td> <td><input type="checkbox"/> Other (explain in remarks)</td> </tr> <tr> <td><input type="checkbox"/> Depleted Below Dark Surface (A11)</td> <td><input type="checkbox"/> Depleted Matrix (F3)</td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> Thick Dark Surface (A12)</td> <td><input type="checkbox"/> Redox Dark Surface (F6)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Sandy Mucky Mineral (S1)</td> <td><input type="checkbox"/> Depleted Dark Surface (F7)</td> <td><sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic</td> </tr> <tr> <td><input type="checkbox"/> Sandy Gleyed Matrix (S4)</td> <td><input type="checkbox"/> Redox Depressions (F8)</td> <td></td> </tr> </table>									<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Indicators for Problematic Hydric Soils <sup>3</sup>	<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2cm Muck (A10)	<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Red Parent Material (TF2)	<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in remarks)	<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/>	<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)	
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<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)																															
Restrictive Layer (if present): Type: _____ Depth (inches): _____					<b>Hydric soil present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																											
Remarks: <a href="#">Click here to enter text.</a>																																

**HYDROLOGY**

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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																																				
Remarks: <b>BGS = below ground surface; above average/flood conditions</b>																																				



**WETLAND DETERMINATION DATA FORM**  
 Western Mountains, Valleys, and Coast Supplement to the  
 1987 COE Wetlands Delineation Manual

750 Sixth Street South  
 Kirkland, Washington 98033  
 (425) 822-5242  
 watershedco.com

**DP- 8**

Project Site: <b>Harvey Field</b>		Sampling Date: <b>2/10/2015</b>
Applicant/Owner: <b>Jviation, Inc</b>		Sampling Point: <b>DP- 8</b>
Investigator: <b>Ryan Kahlo, Nell Lund</b>		City/County: <b>Snohomish County</b>
Sect., Township, Range: <b>S 24 T 28N R 5E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>hillslope</b>	Slope (%): <b>8%</b>	Local relief (concave, convex, none): <b>concave</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>Puget silty clay loam</b>	Datum:	
Soil Map Unit Name: <b>Puget silty clay loam</b>		NWI classification: <b>Palustrine emergent (PEMA)</b>
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<b>River at flood stage</b>
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		(If needed, explain any answers in Remarks.)
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input checked="" type="checkbox"/> naturally problematic		

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

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

Remarks: [Click here to enter text.](#)

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

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>2</b> (A) Total Number of Dominant Species Across All Strata: <b>2</b> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)																					
2.																									
3.																									
4.																									
_____ = Total Cover																									
Sapling/Shrub Stratum (Plot size: 3m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1.				<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Total % Cover of</th> <th>Multiply by</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td></td> <td>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </tbody> </table>	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)
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Column totals	(A)	(B)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover																									
Herb Stratum (Plot size: 1m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1. <b>Grass, unknown 1*</b>	<b>60</b>	<b>Y</b>	<b>FAC</b>	Prevalence Index = B / A =																					
2. <b>Taraxacum officinale</b>	<b>15</b>	<b>N</b>	<b>FACU</b>																						
3. <b>Grass, unknown 2*</b>	<b>20</b>	<b>Y</b>	<b>FAC</b>																						
4. <b>Unknown</b>	<b>5</b>	<b>N</b>																							
5.				<b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance test is > 50% <input type="checkbox"/> Prevalence test is ≤ 3.0 * Morphological Adaptations * (provide supporting data in remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants * <input type="checkbox"/> Problematic Hydrophytic Vegetation * (explain)																					
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
_____ <b>100</b> = Total Cover																									
Woody Vine Stratum (Plot size: )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																					
1.				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																					
2.																									
_____ = Total Cover																									
% Bare Ground in Herb Stratum:																									
Remarks: <b>*assumed FAC</b>																									

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)																																
Depth (inches)	Matrix		Redox Features				Texture	Remarks																								
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>																										
0-14	2.5Y 3/2	100					Loamy sand																									
<p><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</p> <p><b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b></p> <table style="width:100%; border:none;"> <tr> <td><input type="checkbox"/> Histosol (A1)</td> <td><input type="checkbox"/> Sandy Redox (S5)</td> <td><input type="checkbox"/> 2cm Muck (A10)</td> </tr> <tr> <td><input type="checkbox"/> Histic Epipedon (A2)</td> <td><input type="checkbox"/> Stripped Matrix (S6)</td> <td><input type="checkbox"/> Red Parent Material (TF2)</td> </tr> <tr> <td><input type="checkbox"/> Black Histic (A3)</td> <td><input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)</td> <td><input type="checkbox"/> Other (explain in remarks)</td> </tr> <tr> <td><input type="checkbox"/> Hydrogen Sulfide (A4)</td> <td><input type="checkbox"/> Loamy Gleyed Matrix (F2)</td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> Depleted Below Dark Surface (A11)</td> <td><input type="checkbox"/> Depleted Matrix (F3)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Thick Dark Surface (A12)</td> <td><input type="checkbox"/> Redox Dark Surface (F6)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Sandy Mucky Mineral (S1)</td> <td><input type="checkbox"/> Depleted Dark Surface (F7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Sandy Gleyed Matrix (S4)</td> <td><input type="checkbox"/> Redox Depressions (F8)</td> <td></td> </tr> </table> <p><sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic</p>									<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2cm 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"/>	<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)	
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Restrictive Layer (if present): Type: _____ Depth (inches): _____						<b>Hydric soil present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																										
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Surface Water Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (in):																																	
Water Table Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Depth (in):	11" BGS																																
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Depth (in):	8" BGS																																
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																																				
Remarks: <b>BGS = below ground surface; river at flood stage</b>																																				



**WETLAND DETERMINATION DATA FORM**  
 Western Mountains, Valleys, and Coast Supplement to the  
 1987 COE Wetlands Delineation Manual

750 Sixth Street South  
 Kirkland, Washington 98033  
 (425) 822-5242  
 watershedco.com

**DP- 9**

Project Site: <b>Harvey Field</b>		Sampling Date: <b>2/10/2015</b>
Applicant/Owner: <b>Jviation, Inc</b>		Sampling Point: <b>DP- 9</b>
Investigator: <b>Ryan Kahlo, Nell Lund</b>		City/County: <b>Snohomish County</b>
Sect., Township, Range: <b>S 24 T 28N R 5E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>terrace</b>	Slope (%): <b>flat</b>	Local relief (concave, convex, none): <b>convex</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>Sultan silty loam</b>	Datum:	
Soil Map Unit Name: <b>Sultan silty loam</b>		NWI classification: <b>none listed</b>
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? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Is the Sampling Point within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <a href="#">Click here to enter text.</a>		

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

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>1</b> (A) Total Number of Dominant Species Across All Strata: <b>2</b> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <b>50</b> (A/B)																					
2.																									
3.																									
4.																									
_____ = Total Cover																									
Sapling/Shrub Stratum (Plot size: 3m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1.				<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Total % Cover of</th> <th>Multiply by</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td></td> <td>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </tbody> </table>	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)
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)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover																									
Herb Stratum (Plot size: 1m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1. <b>Taraxacum officinale</b>	<b>50</b>	<b>Y</b>	<b>FACU</b>	Prevalence Index = B / A =																					
2. <b>Grass*</b>	<b>25</b>	<b>Y</b>	<b>FAC</b>																						
3. <b>Trifolium repens</b>	<b>10</b>	<b>N</b>	<b>FAC</b>																						
4.				<b>Hydrophytic Vegetation Indicators</b> <input type="checkbox"/> Dominance test is > 50% <input type="checkbox"/> Prevalence test is ≤ 3.0 * Morphological Adaptations * (provide supporting data in remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants * <input type="checkbox"/> Problematic Hydrophytic Vegetation * (explain)																					
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
_____ = Total Cover																									
Woody Vine Stratum (Plot size: )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																					
1.				Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																					
2.																									
_____ = Total Cover																									
% Bare Ground in Herb Stratum:																									
Remarks: <b>*assumed FAC</b>																									

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)																																
Depth (inches)	Matrix		Redox Features				Texture	Remarks																								
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>																										
0-14	2.5Y 3/2	100					Sandy loam																									
<p><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</p> <p><b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b></p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Histosol (A1)</td> <td><input type="checkbox"/> Sandy Redox (S5)</td> <td><input type="checkbox"/> 2cm Muck (A10)</td> </tr> <tr> <td><input type="checkbox"/> Histic Epipedon (A2)</td> <td><input type="checkbox"/> Stripped Matrix (S6)</td> <td><input type="checkbox"/> Red Parent Material (TF2)</td> </tr> <tr> <td><input type="checkbox"/> Black Histic (A3)</td> <td><input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)</td> <td><input type="checkbox"/> Other (explain in remarks)</td> </tr> <tr> <td><input type="checkbox"/> Hydrogen Sulfide (A4)</td> <td><input type="checkbox"/> Loamy Gleyed Matrix (F2)</td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> Depleted Below Dark Surface (A11)</td> <td><input type="checkbox"/> Depleted Matrix (F3)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Thick Dark Surface (A12)</td> <td><input type="checkbox"/> Redox Dark Surface (F6)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Sandy Mucky Mineral (S1)</td> <td><input type="checkbox"/> Depleted Dark Surface (F7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Sandy Gleyed Matrix (S4)</td> <td><input type="checkbox"/> Redox Depressions (F8)</td> <td></td> </tr> </table> <p><sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic</p>									<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2cm 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"/>	<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)	
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<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)																															
Restrictive Layer (if present): Type: _____ Depth (inches): _____						<b>Hydric soil present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																										
Remarks: <a href="#">Click here to enter text.</a>																																

**HYDROLOGY**

<p><b>Wetland Hydrology Indicators:</b>  <i>Primary Indicators (minimum of one required: check all that apply):</i></p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Surface water (A1)</td> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Water-Stained Leaves (except MLRA 1, 2, 4A &amp; 4B) (B9)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Salt Crust (B11)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Aquatic Invertebrates (B13)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Surface Soil Cracks (B6)</td> <td><input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (explain in remarks)</td> </tr> </table>				<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)	<p><i>Secondary Indicators (2 or more required):</i></p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A &amp; 4B)</td> </tr> <tr> <td><input type="checkbox"/> Drainage Patterns (B10)</td> </tr> <tr> <td><input type="checkbox"/> Dry-Season Water Table (C2)</td> </tr> <tr> <td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td> </tr> <tr> <td><input type="checkbox"/> Geomorphic Position (D2)</td> </tr> <tr> <td><input type="checkbox"/> Shallow Aquitard (D3)</td> </tr> <tr> <td><input type="checkbox"/> FAC-Neutral Test (D5)</td> </tr> <tr> <td><input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)</td> </tr> <tr> <td><input type="checkbox"/> Frost-Heave Hummocks</td> </tr> </table>				<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
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<input type="checkbox"/> Frost-Heave Hummocks																																				
<p><b>Field Observations</b></p> Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): _____ Water Table Present?      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): _____ Saturation Present?        Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): _____ (includes capillary fringe)				<p><b>Wetland Hydrology Present?</b>      Yes <input type="checkbox"/>      No <input checked="" type="checkbox"/></p>																																
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																																				
Remarks: <a href="#">Click here to enter text.</a>																																				

**APPENDIX C**

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**Wetland Rating Forms**



Wetland name or number: Wetland A – Harvey Field

# RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 2/10/2015

Rated by: Nell Lund, Ryan Kahlo Trained by Ecology?  Y  N Date of training: 06/2014

HGM Class used for rating: Depressional

Wetland has multiple HGM classes?  Y  N

**NOTE: Form is not complete without the figures requested (figures can be combined).**

Source of base aerial photo/map: SnoScape, Google Earth

## OVERALL WETLAND CATEGORY (based on functions or special characteristics )

### 1. Category of wetland based on FUNCTIONS

- Category I – Total score = 23 - 27
- Category II – Total score = 20 - 22
- Category III – Total score = 16 - 19
- Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <input checked="" type="radio"/> M L	H <input checked="" type="radio"/> M L	H <input checked="" type="radio"/> M L	
Landscape Potential	H <input checked="" type="radio"/> M L	<input checked="" type="radio"/> H M L	H M <input checked="" type="radio"/> L	
Value	<input checked="" type="radio"/> H M L	H M <input checked="" type="radio"/> L	H M <input checked="" type="radio"/> L	<b>TOTAL</b>
<b>Score Based on Ratings</b>	7	6	4	17

**Score for each function based on three ratings (order of ratings is not important)**

- 9 = H,H,H
- 8 = H,H,M
- 7 = H,H,L
- 7 = H,M,M
- 6 = H,M,L
- 6 = M,M,M
- 5 = H,L,L
- 5 = M,M,L
- 4 = M,L,L
- 3 = L,L,L

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	<input checked="" type="checkbox"/>

Wetland name or number: Wetland A – Harvey Field

## Maps and figures required to answer questions correctly for Western Washington

### Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	NA*
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

**\*Figure not included. Contributing basin is all upstream portions of the Snohomish River watershed**



Wetland name or number: Wetland A – Harvey Field

NO – go to 6

YES – The wetland class is **Riverine**

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

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 the wetland unit being scored.

**NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

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

Wetland name or number: Wetland A – Harvey Field

**DEPRESSIONAL AND FLATS WETLANDS**

**Water Quality Functions - Indicators that the site functions to improve water quality**

<b>D 1.0. Does the site have the potential to improve water quality?</b>		
<b>D 1.1. Characteristics of surface water outflows from the wetland:</b> Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 <b>Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.</b> points = 2 <b>*Ditch functions as both an inlet and an outlet, therefore is only an intermittently flowing outlet.</b> Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		2
<b>D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions).</b> Yes = 4 No = 0		0
<b>D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):</b> Wetland has persistent, ungrazed, plants > 95% of area points = 5 <del>Wetland has persistent, ungrazed, plants &gt; 1/2 of area points = 3</del> <b>Wetland has persistent, ungrazed plants &gt; 1/10 of area points = 1</b> Wetland has persistent, ungrazed plants < 1/10 of area points = 0		1
<b>D 1.4. Characteristics of seasonal ponding or inundation:</b> <i>This is the area that is ponded for at least 2 months. See description in manual.</i> <b>Area seasonally ponded is &gt; ½ total area of wetland points = 4</b> Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0		4
<b>Total for D 1</b>	Add the points in the boxes above	7

**Rating of Site Potential** If score is:  12-16 = H  6-11 = M  0-5 = L *Record the rating on the first page*

<b>D 2.0. Does the landscape have the potential to support the water quality function of the site?</b>		
<b>D 2.1. Does the wetland unit receive stormwater discharges?</b>	Yes = 1 No = 0	1
<b>D 2.2. Is &gt; 10% of the area within 150 ft of the wetland in land uses that generate pollutants?</b>	Yes = 1 No = 0	1
<b>D 2.3. Are there septic systems within 250 ft of the wetland?</b>	Yes = 1 No = 0	0
<b>D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?</b> Source _____	Yes = 1 No = 0	0
<b>Total for D 2</b>	Add the points in the boxes above	2

**Rating of Landscape Potential** If score is:  3 or 4 = H  1 or 2 = M  0 = L *Record the rating on the first page*

<b>D 3.0. Is the water quality improvement provided by the site valuable to society?</b>		
<b>D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?</b>	Yes = 1 No = 0	1
<b>D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?</b>	Yes = 1 No = 0	1
<b>D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?</b>	Yes = 2 No = 0	2
<b>Total for D 3</b>	Add the points in the boxes above	4

**Rating of Value** If score is:  2-4 = H  1 = M  0 = L *Record the rating on the first page*

**DEPRESSIONAL AND FLATS WETLANDS**

**Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	2
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.		
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	7
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.		
The area of the basin is less than 10 times the area of the unit	points = 5	0
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
*Contributing basin includes all upstream portions of the Snohomish River watershed. Figure not included.		
Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	9

**Rating of Site Potential** If score is:  12-16 = H  6-11 = M  0-5 = L Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	3

**Rating of Landscape Potential** If score is:  3 = H  1 or 2 = M  0 = L Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.		
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		0
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
• Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the sub-basin.	points = 1	
The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why <u>The wetland unit is disconnected from the surrounding landscape by roads, undersized culverts, and levees.</u>	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	0

**Rating of Value** If score is:  2-4 = H  1 = M  0 = L Record the rating on the first page

**These questions apply to wetlands of all HGM classes.**

**HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- Aquatic bed 4 structures or more: points = 4
  - Emergent 3 structures: points = 2
  - Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
  - Forested (areas where trees have > 30% cover) 1 structure: points = 0
- If the unit has a Forested class, check if:*
- 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

1

H 1.2. Hydroperiods

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 ac to count (*see text for descriptions of hydroperiods*).

- Permanently flooded or inundated (**ditch**) 4 or more types present: points = 3
- Seasonally flooded or inundated 3 types present: points = 2
- Occasionally flooded or inundated 2 types present: points = 1
- Saturated only 1 type present: points = 0
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake Fringe wetland** **2 points**
- Freshwater tidal wetland** **2 points**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>.

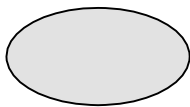
*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*

- If you counted: > 19 species points = 2
- 5 - 19 species : **JUEF, grasses, SPDO, COSE, THPL, POBA, SASI, RUSP** points = 1
- < 5 species points = 0

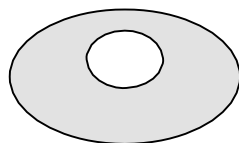
1

H 1.4. Interspersion of habitats

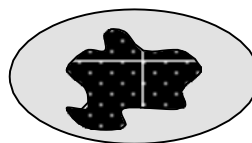
Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



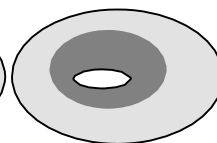
None = 0 points



Low = 1 point

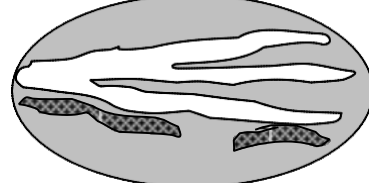
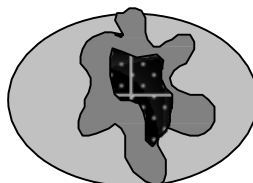
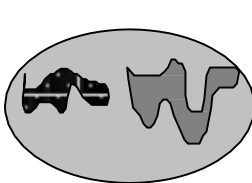


Moderate = 2 points



2

All three diagrams in this row are **HIGH** = 3 points



Wetland name or number: Wetland A – Harvey Field

<p>H 1.5. Special habitat features:                  Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (&gt; 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh &gt; 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) <b>and/or</b> overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt; 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>		2
Total for H 1	Add the points in the boxes above	8

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?			
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate: % undisturbed habitat: 0 + [(% moderate and low intensity land uses)/2]: 0 = 0%</i> If total accessible habitat is:</p> <p>&gt; 1/3 (33.3%) of 1 km Polygon <span style="float: right;">points = 3</span></p> <p>20-33% of 1 km Polygon <span style="float: right;">points = 2</span></p> <p>10-19% of 1 km Polygon <span style="float: right;">points = 1</span></p> <p><b>&lt; 10% of 1 km Polygon <span style="float: right;">points = 0</span></b></p>			0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate: % undisturbed habitat: 6 + [(% moderate and low intensity land uses)/2]: 0 = 6%</i></p> <p>Undisturbed habitat &gt; 50% of Polygon <span style="float: right;">points = 3</span></p> <p>Undisturbed habitat 10-50% and in 1-3 patches <span style="float: right;">points = 2</span></p> <p>Undisturbed habitat 10-50% and &gt; 3 patches <span style="float: right;">points = 1</span></p> <p><b>Undisturbed habitat &lt; 10% of 1 km Polygon <span style="float: right;">points = 0</span></b></p>			0
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p><b>&gt; 50% of 1 km Polygon is high intensity land use <span style="float: right;">points = (- 2)</span></b></p> <p>≤ 50% of 1 km Polygon is high intensity <span style="float: right;">points = 0</span></p>			-2
Total for H 2	Add the points in the boxes above	-2	

**Rating of Landscape Potential** If score is:  4-6 = H  1-3 = M  < 1 = L *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?			
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></p> <p>Site meets ANY of the following criteria: <span style="float: right;">points = 2</span></p> <p><input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page)</p> <p><input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)</p> <p><input type="checkbox"/> It is mapped as a location for an individual WDFW priority species</p> <p><input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources</p> <p><input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan</p> <p>Site has 1 or 2 priority habitats (listed on next page) within 100 m <span style="float: right;">points = 1</span></p> <p><b>Site does not meet any of the criteria above <span style="float: right;">points = 0</span></b></p>			0

**Rating of Value** If score is:  2 = H  1 = M  0 = L *Record the rating on the first page*

Wetland name or number: Wetland A – Harvey Field

## WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

- Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- 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 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- 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 – see web link above*).
- 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 – see web link on previous page*).
- Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Estuarine wetlands</b></p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <p><input type="checkbox"/> The dominant water regime is tidal,  <input type="checkbox"/> Vegetated, and  <input type="checkbox"/> With a salinity greater than 0.5 ppt <span style="float: right;"><input type="checkbox"/> Yes – Go to <b>SC 1.1</b>   <input checked="" type="checkbox"/> No = <b>Not an estuarine wetland</b></span></p>	
<p>SC 1.1. Is the wetland 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?  <span style="float: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No - Go to <b>SC 1.2</b></span></p>	<b>Cat. I</b>
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25)  <input type="checkbox"/> 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.  <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <span style="float: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No = <b>Category II</b></span></p>	<b>Cat. I</b>  <b>Cat. II</b>
<p><b>SC 2.0. Wetlands of High Conservation Value (WHCV)</b></p> <p>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <span style="float: right;"><input type="checkbox"/> Yes – Go to <b>SC 2.2</b>   <input checked="" type="checkbox"/> No – Go to <b>SC 2.3</b></span></p> <p>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  <span style="float: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No = <b>Not a WHCV</b></span></p> <p>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>  <span style="float: right;"><input type="checkbox"/> Yes – <b>Contact WNHP/WDNR and go to SC 2.4</b>   <input checked="" type="checkbox"/> No = <b>Not a WHCV</b></span></p> <p>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?  <span style="float: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No = <b>Not a WHCV</b></span></p>	<b>Cat. I</b>
<p><b>SC 3.0. Bogs</b></p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <span style="float: right;"><input type="checkbox"/> Yes – Go to <b>SC 3.3</b>   <input checked="" type="checkbox"/> No – Go to <b>SC 3.2</b></span></p> <p>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <span style="float: right;"><input type="checkbox"/> Yes – Go to <b>SC 3.3</b>   <input checked="" type="checkbox"/> No = <b>Is not a bog</b></span></p> <p>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <span style="float: right;"><input type="checkbox"/> Yes = <b>Is a Category I bog</b>   <input type="checkbox"/> No – Go to <b>SC 3.4</b></span>  <b>NOTE:</b> If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> <p>SC 3.4. Is an area with peats or mucks forested (&gt; 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?  <span style="float: right;"><input type="checkbox"/> Yes = <b>Is a Category I bog</b>   <input type="checkbox"/> No = <b>Is not a bog</b></span></p>	<b>Cat. I</b>



# Appendix [A] — ECY 2014 Wetland Rating Form: Depressional figures

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Figure 1. Cowardin plant classes - D1.3, H1.1, H1.4

Figure 2. Hydrology: hydroperiods, outlets, and 150ft buffer - D1.1, D1.4, D4.1, H1.2, D2.2, D5.2

Figure 3. Accessible and undisturbed habitat 1km from wetland edge - H2.1, H2.2, H2.3

Figure 4. Screen-capture of 303(d) listed waters in basin - D3.1, D3.2

Figure 5. Screen-capture of TMDL list for WRIA - D3.3

## Resources and Links:

[Snohomish County GIS](#)

Google Earth 2014

[ECY 303\(d\) list](#), accessed January 2, 2014

[TMDL list](#), accessed January 2, 2014

Figure 1. Cowardin plant classes - D1.3, H1.1, H1.4



**Note:** Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment.





LEGEND	
	Palustrine scrub shrub
	Palustrine emergent
	Palustrine aquatic bed
	Wetland boundary

Figure 2. Hydrology: hydroperiods, outlets, and 150ft buffer - D1.1, D1.4, D4.1, H1.2, D2.2, D5.2

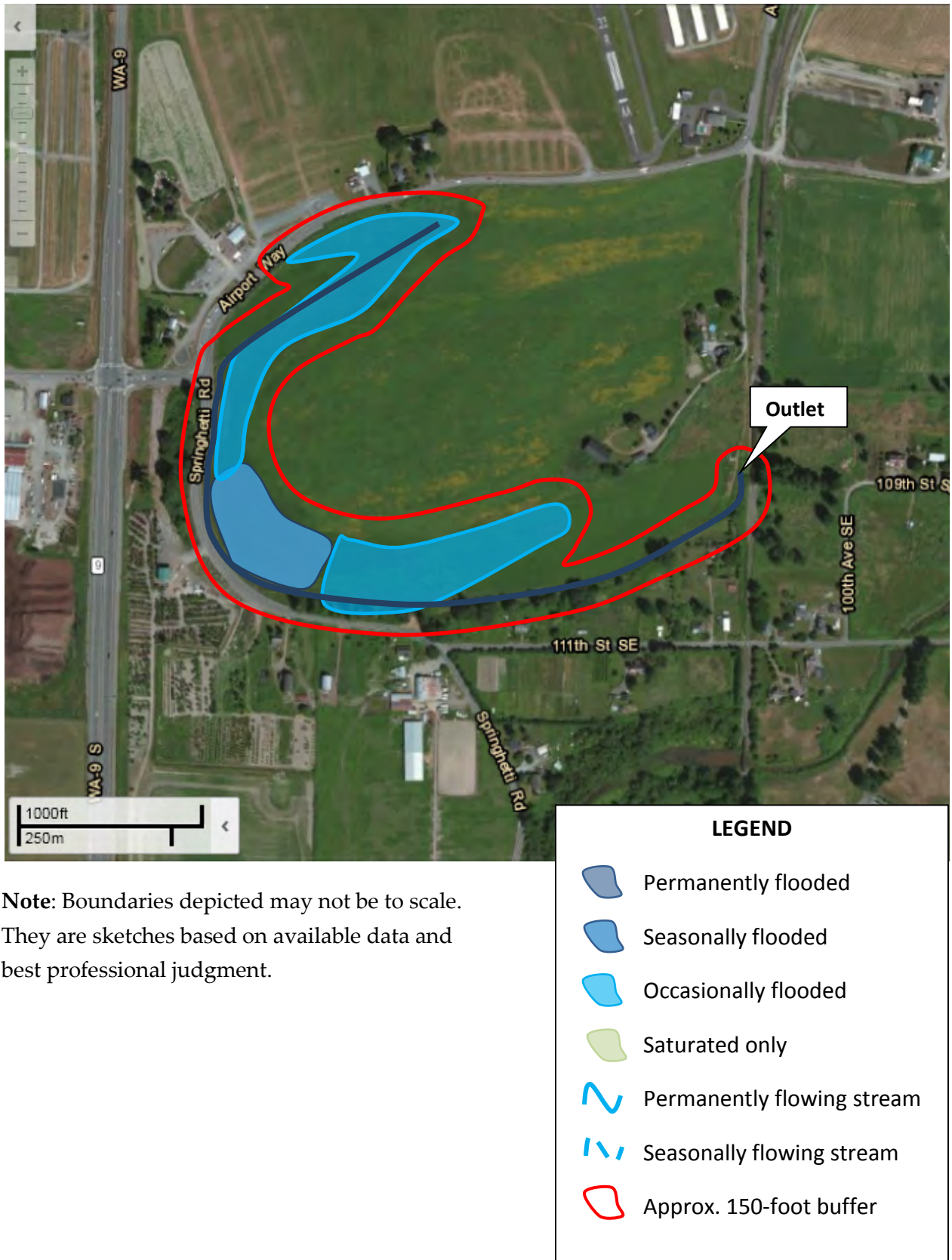


Figure 3. Accessible and undisturbed habitat 1km from wetland edge - H2.1, H2.2, H2.3



**Note:** Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment.

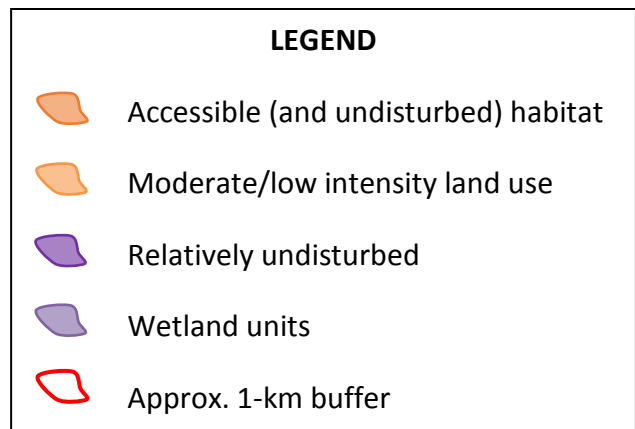


Figure 4. Screen-capture of 303(d) listed waters in basin - D3.1, D3.2. Accessed January 2, 2014

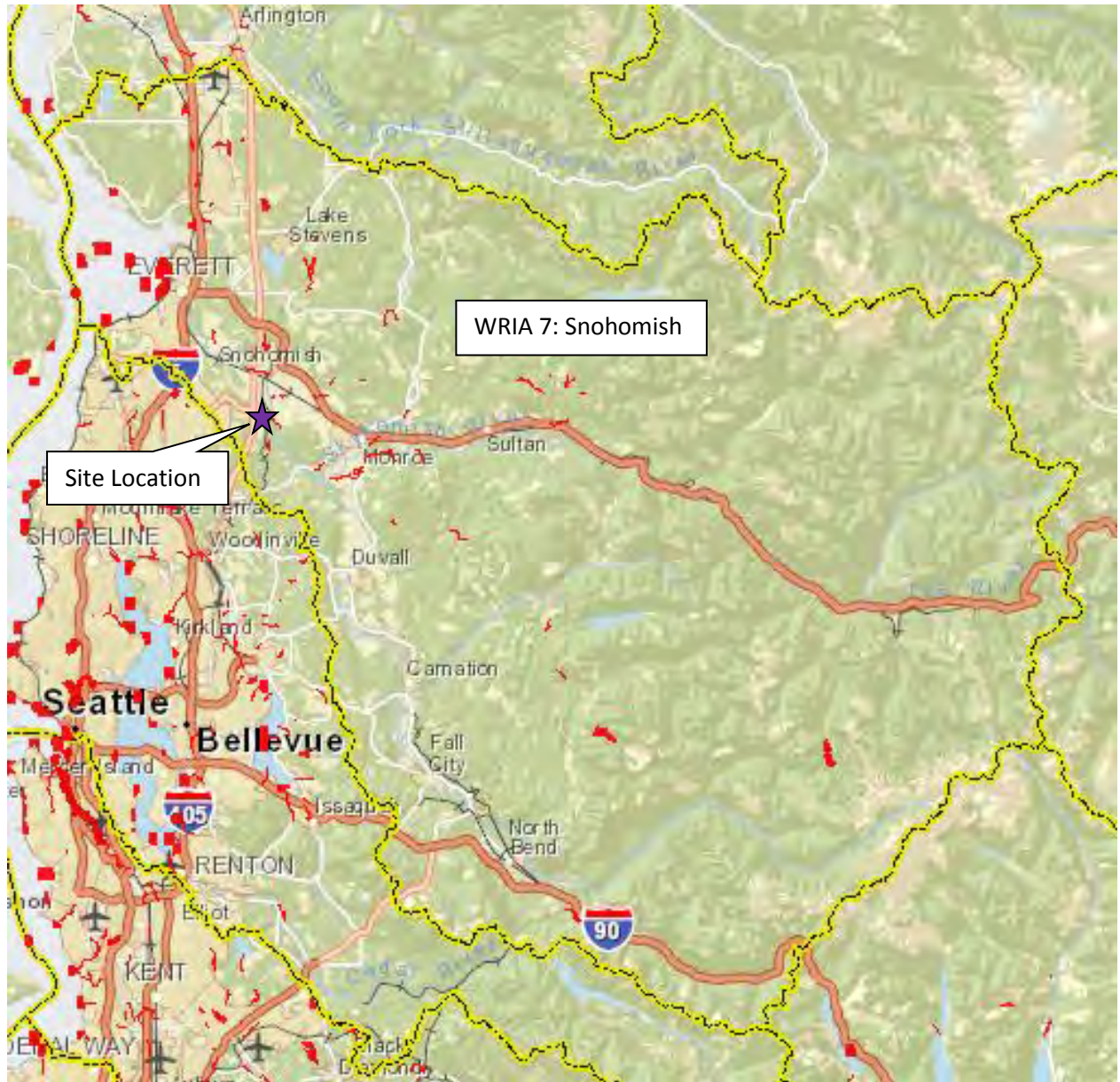


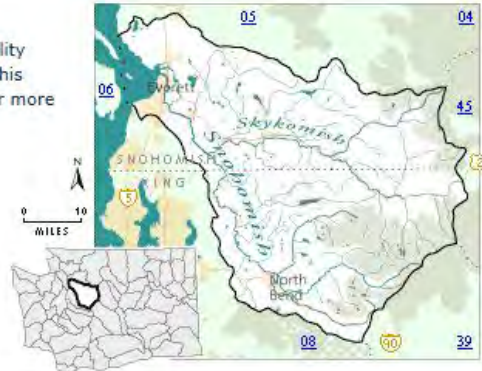
Figure 5. Screen-capture of TMDL list for WRIA in which unit is found - D3.3  
 accessed January 2, 2014.

**WRIA 7: Snohomish**

The following table lists overview information and links to specific water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.

**Counties**

- [King](#)
- [Snohomish](#)



Waterbody Name	Pollutant(s)	Status**	TMDL Lead
<a href="#">Lake Loma</a>	Total Phosphorus	Straight to implementation project under development	<a href="#">Tricia Shoblom</a> 425-649-7288
<a href="#">Snohomish River</a>	<a href="#">French Creek / Pilchuck River</a>	Under development	<a href="#">Ralph Svrcek</a> 425-649-7165
	<ul style="list-style-type: none"> <li>• Dissolved Oxygen</li> <li>• Temperature</li> </ul>		
	<a href="#">Dioxin</a>	EPA approved	<a href="#">Ralph Svrcek</a> 425-649-7165
	<a href="#">Estuary</a>	EPA approved	<a href="#">Ralph Svrcek</a> 425-649-7165
	<ul style="list-style-type: none"> <li>• Ammonia</li> <li>• BOD</li> </ul>		
<a href="#">Tributaries</a>	<ul style="list-style-type: none"> <li>• Fecal Coliform</li> </ul> Tributaries: <ul style="list-style-type: none"> <li>• Allen Creek</li> <li>• Quilceda Creek</li> <li>• French Creek</li> <li>• Woods Creek</li> <li>• Pilchuck River</li> <li>• Marshlands (Wood Creek) {2}</li> </ul>	EPA approved	<a href="#">Ralph Svrcek</a> 425-649-7165
<a href="#">Snoqualmie River</a>	<ul style="list-style-type: none"> <li>• Ammonia-N</li> <li>• BOD (5-day)</li> <li>• Fecal Coliform</li> </ul> Temperature	EPA approved  Has an implementation plan	<a href="#">Ralph Svrcek</a> 425-649-7165

\*\* Status will be listed as one of the following: Approved by EPA, Under Development or Implementation

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

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Wetland name or number: B

# RATING SUMMARY – Western Washington

Name of wetland (or ID #): [Click here to enter text.](#) Date of site visit: [Click here to enter a date.](#)

Rated by: [Click here to enter text.](#) Trained by Ecology?  Y  N Date of training: [Choose an item.](#)

HGM Class used for rating: [Choose an item.](#)

Wetland has multiple HGM classes?  Y  N

**NOTE: Form is not complete without the figures requested (figures can be combined).**

Source of base aerial photo/map: [Click here to enter text.](#)

## OVERALL WETLAND CATEGORY (based on functions or special characteristics 1. Category of wetland based on FUNCTIONS

- Category I – Total score = 23 - 27
- Category II – Total score = 20 - 22
- Category III – Total score = 16 - 19
- Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <u>M</u> L	H <u>M</u> L	H M <u>L</u>	
Landscape Potential	H M <u>L</u>	H <u>M</u> L	H M <u>L</u>	
Value	<u>H</u> M L	H <u>M</u> L	H M <u>L</u>	<b>TOTAL</b>
Score Based on Ratings	6	6	3	15

**Score for each function based on three ratings (order of ratings is not important)**

9 = H,H,H  
 8 = H,H,M  
 7 = H,H,L  
 7 = H,M,M  
 6 = H,M,L  
 6 = M,M,M  
 5 = H,L,L  
 5 = M,M,L  
 4 = M,L,L  
 3 = L,L,L

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	<input type="checkbox"/>

Wetland name or number: B

## Maps and figures required to answer questions correctly for Western Washington

### Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	2
Map of the contributing basin	D 4.3, D 5.3	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

### Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

### Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

### Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	
Boundary of 150 ft buffer ( <i>can be added to another figure</i> )	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	



Wetland name or number: B

NO – go to 6

YES – The wetland class is **Riverine**

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

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 the wetland unit being scored.

**NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

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

Wetland name or number: B

### **DEPRESSIONAL AND FLATS WETLANDS**

#### **Water Quality Functions - Indicators that the site functions to improve water quality**

<b>D 1.0. Does the site have the potential to improve water quality?</b>		
<p>D 1.1. <u>Characteristics of surface water outflows from the wetland:</u>                  Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). <span style="float: right;">points = 3</span>  <b>Wetland has an intermittently flowing stream or ditch,</b> OR highly constricted permanently flowing outlet. <span style="float: right;"><b>points = 2</b></span>                  Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing <span style="float: right;">points = 1</span>                  Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. <span style="float: right;">points = 1</span></p>	<b>2</b>	
D 1.2. <u>The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions).</u> Yes = 4 No = 0		
D 1.3. <u>Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):</u> Wetland has persistent, ungrazed, plants > 95% of area <span style="float: right;">points = 5</span> Wetland has persistent, ungrazed, plants > 1/2 of area <span style="float: right;">points = 3</span> Wetland has persistent, ungrazed plants > 1/10 of area <span style="float: right;">points = 1</span> <b>Wetland has persistent, ungrazed plants &lt; 1/10 of area</b> <span style="float: right;"><b>points = 0</b></span> <u>*Mowed</u>		
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > ½ total area of wetland <span style="float: right;">points = 4</span> Area seasonally ponded is > ¼ total area of wetland <span style="float: right;">points = 2</span> Area seasonally ponded is < ¼ total area of wetland <span style="float: right;">points = 0</span>		
Total for D 1		Add the points in the boxes above
		<b>6</b>

**Rating of Site Potential** If score is:  12-16 = H  6-11 = M  0-5 = L *Record the rating on the first page*

<b>D 2.0. Does the landscape have the potential to support the water quality function of the site?</b>		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?		0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source _____	Yes = 1 No = 0	0
Total for D 2		Add the points in the boxes above
		<b>0</b>

**Rating of Landscape Potential** If score is:  3 or 4 = H  1 or 2 = M  0 = L *Record the rating on the first page*

<b>D 3.0. Is the water quality improvement provided by the site valuable to society?</b>		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?	Yes = 2 No = 0	2
Total for D 3		Add the points in the boxes above
		<b>3</b>

**Rating of Value** If score is:  2-4 = H  1 = M  0 = L *Record the rating on the first page*

Wetland name or number: B

### DEPRESSIONAL AND FLATS WETLANDS

#### Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

<b>D 4.0. Does the site have the potential to reduce flooding and erosion?</b>		
<b>D 4.1. Characteristics of surface water outflows from the wetland:</b> Wetland is a depression or flat depression with no surface water leaving it (no outlet) <span style="float: right;">points = 4</span> <b>Wetland has an intermittently flowing stream or ditch</b> , OR highly constricted permanently flowing outlet <span style="float: right;">points = 2</span> Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch <span style="float: right;">points = 1</span> Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing <span style="float: right;">points = 0</span>		<b>2</b>
<b>D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.</b> Marks of ponding are 3 ft or more above the surface or bottom of outlet <span style="float: right;">points = 7</span> Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet <span style="float: right;">points = 5</span> <b>Marks are at least 0.5 ft to &lt; 2 ft from surface or bottom of outlet</b> <span style="float: right;">points = 3</span> The wetland is a "headwater" wetland <span style="float: right;">points = 3</span> Wetland is flat but has small depressions on the surface that trap water <span style="float: right;">points = 1</span> Marks of ponding less than 0.5 ft (6 in) <span style="float: right;">points = 0</span>		<b>3</b>
<b>D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</b> The area of the basin is less than 10 times the area of the unit <span style="float: right;">points = 5</span> <b>The area of the basin is 10 to 100 times the area of the unit</b> <span style="float: right;">points = 3</span> The area of the basin is more than 100 times the area of the unit <span style="float: right;">points = 0</span> Entire wetland is in the Flats class <span style="float: right;">points = 5</span>		<b>3</b>
<b>Total for D 4</b>		<b>8</b>

Add the points in the boxes above

**Rating of Site Potential** If score is:  12-16 = H  6-11 = M  0-5 = L

*Record the rating on the first page*

<b>D 5.0. Does the landscape have the potential to support hydrologic functions of the site?</b>		
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
<b>Total for D 5</b>		<b>2</b>

Add the points in the boxes above

**Rating of Landscape Potential** If score is:  3 = H  1 or 2 = M  0 = L

*Record the rating on the first page*

<b>D 6.0. Are the hydrologic functions provided by the site valuable to society?</b>		
<b>D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.</b> The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): <ul style="list-style-type: none"> <li>• Flooding occurs in a sub-basin that is immediately down-gradient of unit. <span style="float: right;">points = 2</span></li> <li>• <b>Surface flooding problems are in a sub-basin farther down-gradient.</b> <span style="float: right;">points = 1</span></li> </ul> Flooding from groundwater is an issue in the sub-basin. <span style="float: right;">points = 1</span>  The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. <i>Explain why</i> _____ <span style="float: right;">points = 0</span>  There are no problems with flooding downstream of the wetland. <span style="float: right;">points = 0</span>		<b>1</b>
<b>D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</b> <span style="float: right;">Yes = 2 No = 0</span>		<b>0</b>
<b>Total for D 6</b>		<b>1</b>

Add the points in the boxes above

**Rating of Value** If score is:  2-4 = H  1 = M  0 = L

*Record the rating on the first page*

Wetland name or number: B

**These questions apply to wetlands of all HGM classes.**

**HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- Aquatic bed 4 structures or more: points = 4
  - Emergent 3 structures: points = 2
  - Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
  - Forested (areas where trees have > 30% cover) 1 structure: points = 0
- If the unit has a Forested class, check if:*
- 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

0

H 1.2. Hydroperiods

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 ac to count (*see text for descriptions of hydroperiods*).

- Permanently flooded or inundated 4 or more types present: points = 3
- Seasonally flooded or inundated 3 types present: points = 2
- Occasionally flooded or inundated 2 types present: points = 1
- Saturated only 1 type present: points = 0
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake Fringe wetland** **2 points**
- Freshwater tidal wetland** **2 points**

0

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>.

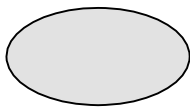
*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*

- If you counted: > 19 species points = 2
- 5 - 19 species points = 1
- < 5 species points = 0

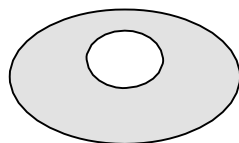
0

H 1.4. Interspersion of habitats

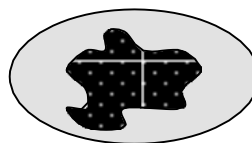
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



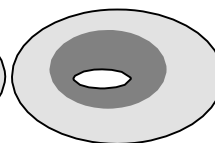
None = 0 points



Low = 1 point

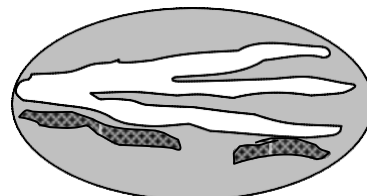
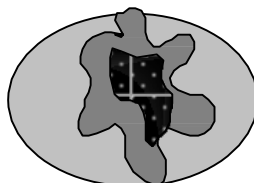
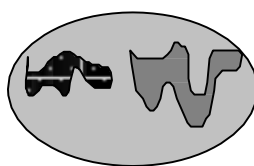


Moderate = 2 points



0

All three diagrams in this row are **HIGH** = 3 points



Wetland name or number: B

<p>H 1.5. Special habitat features:            Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input type="checkbox"/> Large, downed, woody debris within the wetland (&gt; 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh &gt; 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) <b>and/or</b> overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt; 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>		0
Total for H 1	Add the points in the boxes above	0

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?		
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat: <math>0 + [(\% \text{ moderate and low intensity land uses})0/2]</math>: <b>0%</b> If total accessible habitat is:</p> <p>&gt; 1/3 (33.3%) of 1 km Polygon <span style="float: right;">points = 3</span></p> <p>20-33% of 1 km Polygon <span style="float: right;">points = 2</span></p> <p>10-19% of 1 km Polygon <span style="float: right;">points = 1</span></p> <p>&lt; 10% of 1 km Polygon <span style="float: right;">points = 0</span></p>		0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat: <math>5 + [(\% \text{ moderate and low intensity land uses})0/2]</math>: <b>0 = 5%</b></p> <p>Undisturbed habitat &gt; 50% of Polygon <span style="float: right;">points = 3</span></p> <p>Undisturbed habitat 10-50% and in 1-3 patches <span style="float: right;">points = 2</span></p> <p>Undisturbed habitat 10-50% and &gt; 3 patches <span style="float: right;">points = 1</span></p> <p>Undisturbed habitat &lt; 10% of 1 km Polygon <span style="float: right;">points = 0</span></p>		0
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>&gt; 50% of 1 km Polygon is high intensity land use <span style="float: right;">points = (- 2)</span></p> <p>≤ 50% of 1 km Polygon is high intensity <span style="float: right;">points = 0</span></p>		-2
Total for H 2	Add the points in the boxes above	-2

**Rating of Landscape Potential** If score is:  4-6 = H  1-3 = M  < 1 = L *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?		
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></p> <p>Site meets ANY of the following criteria: <span style="float: right;">points = 2</span></p> <p><input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page)</p> <p><input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)</p> <p><input type="checkbox"/> It is mapped as a location for an individual WDFW priority species</p> <p><input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources</p> <p><input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan</p> <p>Site has 1 or 2 priority habitats (listed on next page) within 100 m <span style="float: right;">points = 1</span></p> <p>Site does not meet any of the criteria above <span style="float: right;">points = 0</span></p>		0

**Rating of Value** If score is:  2 = H  1 = M  0 = L *Record the rating on the first page*

Wetland name or number: B

## WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

- Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- 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 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- 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 – see web link above*).
- 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 – see web link on previous page*).
- Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number: B

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Estuarine wetlands</b></p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <p><input type="checkbox"/> The dominant water regime is tidal,</p> <p><input type="checkbox"/> Vegetated, and</p> <p><input type="checkbox"/> With a salinity greater than 0.5 ppt <span style="float: right;"><input type="checkbox"/> Yes – Go to <b>SC 1.1</b>   <input type="checkbox"/> No = <b>Not an estuarine wetland</b></span></p>	
<p>SC 1.1. Is the wetland 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? <span style="float: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No - Go to <b>SC 1.2</b></span></p>	<b>Cat. I</b>
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25)</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <span style="float: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No = <b>Category II</b></span></p>	<b>Cat. I</b>  <b>Cat. II</b>
<p><b>SC 2.0. Wetlands of High Conservation Value (WHCV)</b></p> <p>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <span style="float: right;"><input type="checkbox"/> Yes – Go to <b>SC 2.2</b>   <input type="checkbox"/> No – Go to <b>SC 2.3</b></span></p> <p>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? <span style="float: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No = <b>Not a WHCV</b></span></p> <p>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a> <span style="float: right;"><input type="checkbox"/> Yes – <b>Contact WNHP/WDNR and go to SC 2.4</b>   <input type="checkbox"/> No = <b>Not a WHCV</b></span></p> <p>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <span style="float: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No = <b>Not a WHCV</b></span></p>	<b>Cat. I</b>
<p><b>SC 3.0. Bogs</b></p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <span style="float: right;"><input type="checkbox"/> Yes – Go to <b>SC 3.3</b>   <input type="checkbox"/> No – Go to <b>SC 3.2</b></span></p> <p>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <span style="float: right;"><input type="checkbox"/> Yes – Go to <b>SC 3.3</b>   <input type="checkbox"/> No = <b>Is not a bog</b></span></p> <p>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <span style="float: right;"><input type="checkbox"/> Yes = <b>Is a Category I bog</b>   <input type="checkbox"/> No – Go to <b>SC 3.4</b></span></p> <p><b>NOTE:</b> If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> <p>SC 3.4. Is an area with peats or mucks forested (&gt; 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <span style="float: right;"><input type="checkbox"/> Yes = <b>Is a Category I bog</b>   <input type="checkbox"/> No = <b>Is not a bog</b></span></p>	<b>Cat. I</b>

Wetland name or number: B

<p><b>SC 4.0. Forested Wetlands</b></p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <b><i>If you answer YES you will still need to rate the wetland based on its functions.</i></b></p> <p><input type="checkbox"/> <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/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> <b>Mature forests</b> (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No = <b>Not a forested wetland for this section</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 5.0. Wetlands in Coastal Lagoons</b></p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> 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</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded 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>)</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to <b>SC 5.1</b>   <input type="checkbox"/> No = <b>Not a wetland in a coastal lagoon</b></p> <p><b>SC 5.1.</b> Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft<sup>2</sup>)</p> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No = <b>Category II</b></p>	<p><b>Cat. I</b></p> <p><b>Cat. II</b></p>
<p><b>SC 6.0. Interdunal Wetlands</b></p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <b><i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></b></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to <b>SC 6.1</b>   <input type="checkbox"/> No = <b>not an interdunal wetland for rating</b></p> <p><b>SC 6.1.</b> Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No – Go to <b>SC 6.2</b></p> <p><b>SC 6.2.</b> Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Category II</b>   <input type="checkbox"/> No – Go to <b>SC 6.3</b></p> <p><b>SC 6.3.</b> Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Category III</b>   <input type="checkbox"/> No = <b>Category IV</b></p>	<p><b>Cat I</b></p> <p><b>Cat. II</b></p> <p><b>Cat. III</b></p> <p><b>Cat. IV</b></p>
<p><b>Category of wetland based on Special Characteristics</b></p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>Click here to enter text.</p>

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

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# Appendix [B] — ECY 2014 Wetland Rating Form: Depressional figures

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Figure 1. Cowardin plant classes - D1.3, H1.1, H1.4

Figure 2. Hydrology: hydroperiods, outlets, and 150ft buffer - D1.1, D1.4, D4.1, H1.2, D2.2, D5.2

Figure 3. Contributing upland basin to wetland area - D4.3, D5.3

Figure 4. Accessible and undisturbed habitat 1km from wetland edge - H2.1, H2.2, H2.3

Figure 5. Screen-capture of 303(d) listed waters in basin - D3.1, D3.2

Figure 6. Screen-capture of TMDL list for WRIA - D3.3

## Resources and Links:

Snohomish County GIS

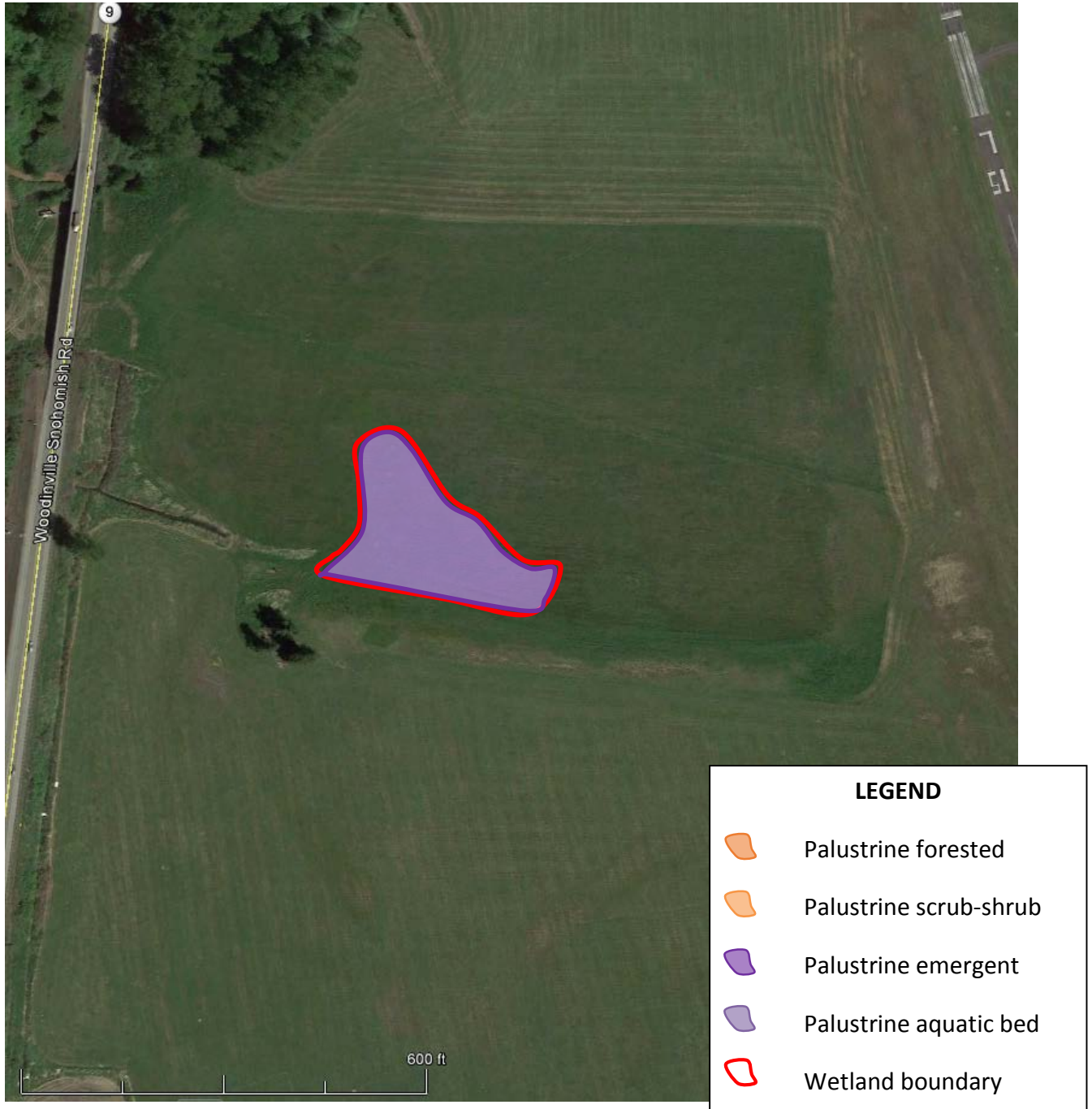
Washington Coastal Atlas

Google Earth

ECY 303(d) list

TMDL list

Figure 1. Cowardin plant classes - D1.3, H1.1, H1.4



**Note:** Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment.

Figure 2. Hydrology: hydroperiods, outlets, and 150ft buffer - D1.1, D1.4, D4.1, H1.2, D2.2, D5.2



**Note:** Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment

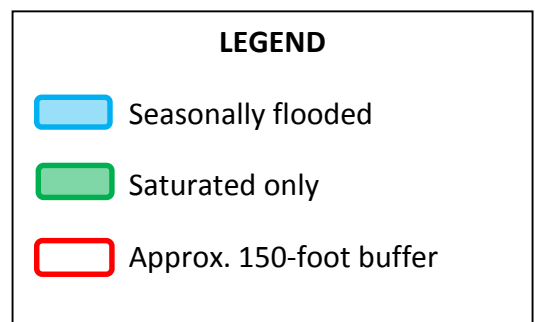


Figure 3. Contributing upland basin to wetland area - D4.3, D5.3



**Note:** Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment.



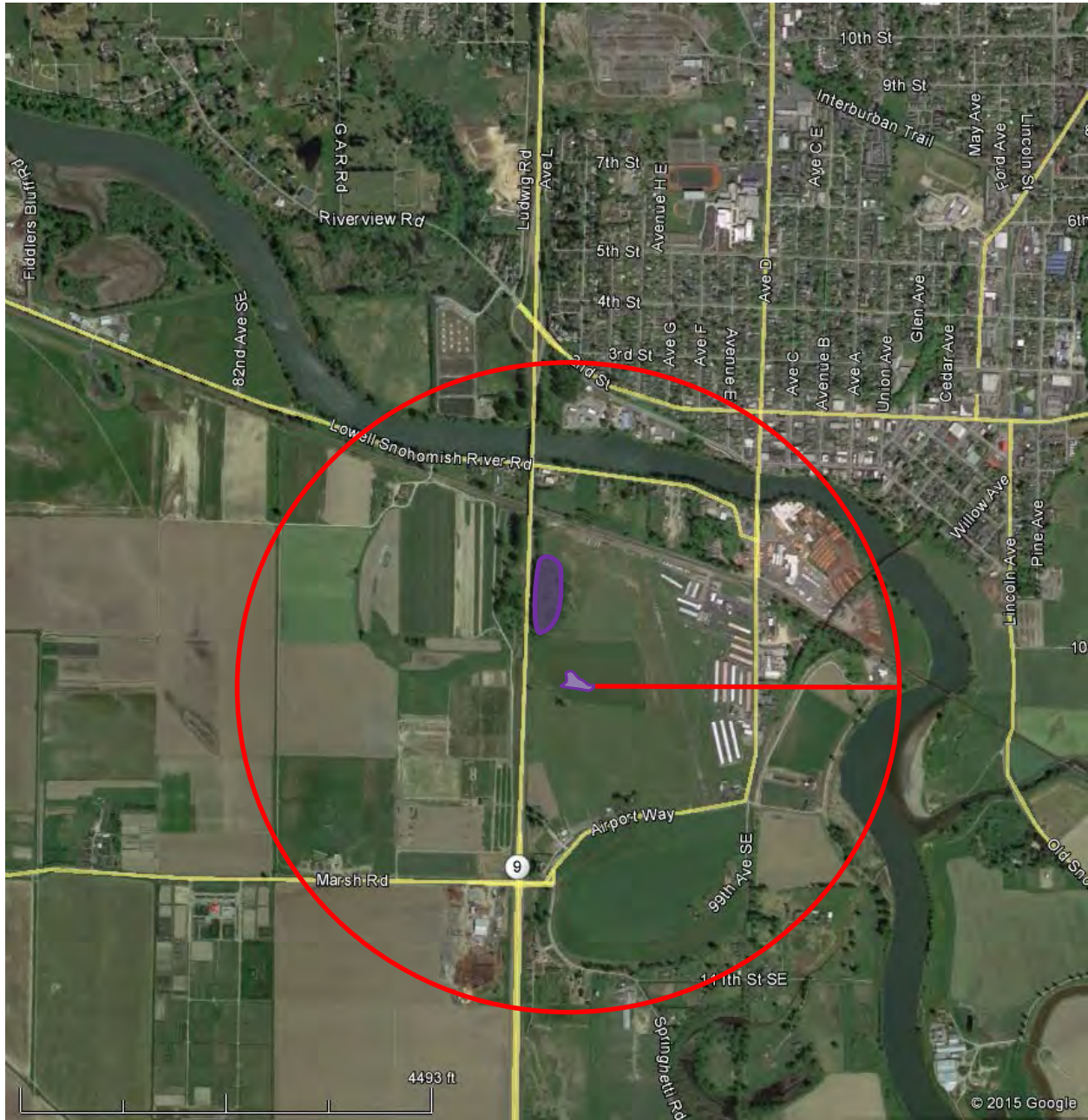
LEGEND	
	Wetland unit
	Approx. basin boundary

Figure 4. Accessible and undisturbed habitat 1km from wetland edge - H2.1, H2.2, H2.3



**Note:** Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment.

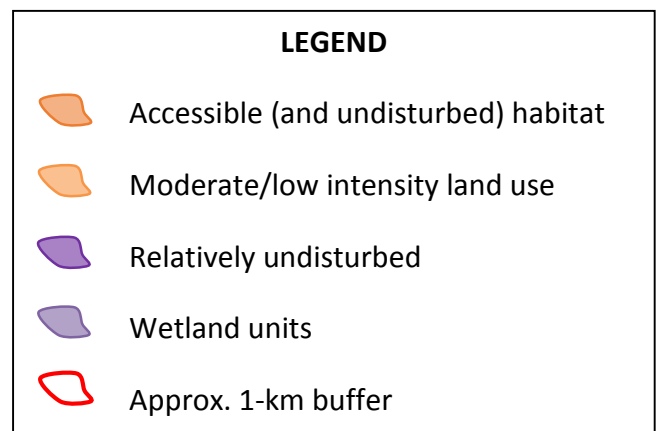


Figure 5. Screen-capture of 303(d) listed waters in basin - D3.1, D3.2

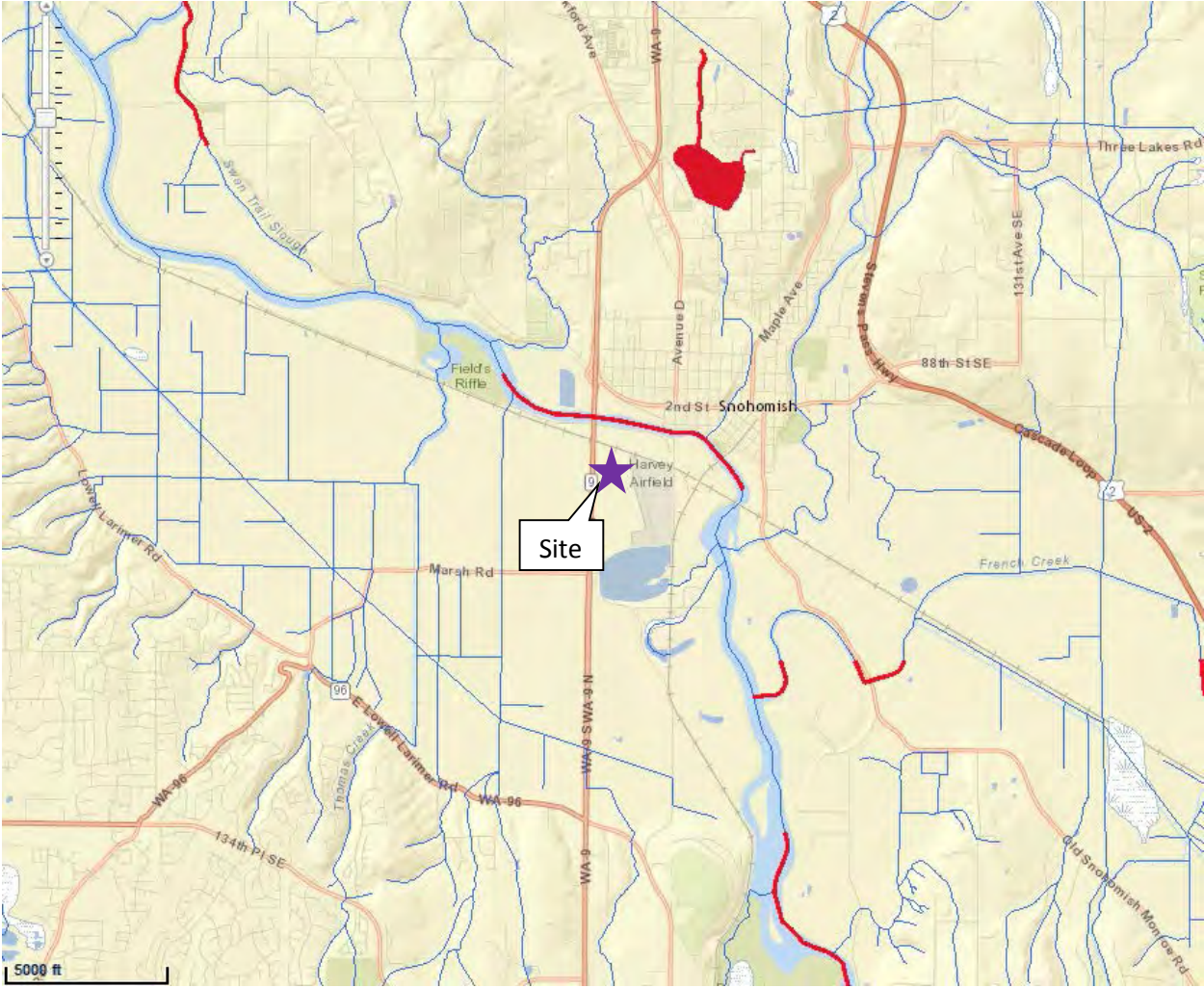
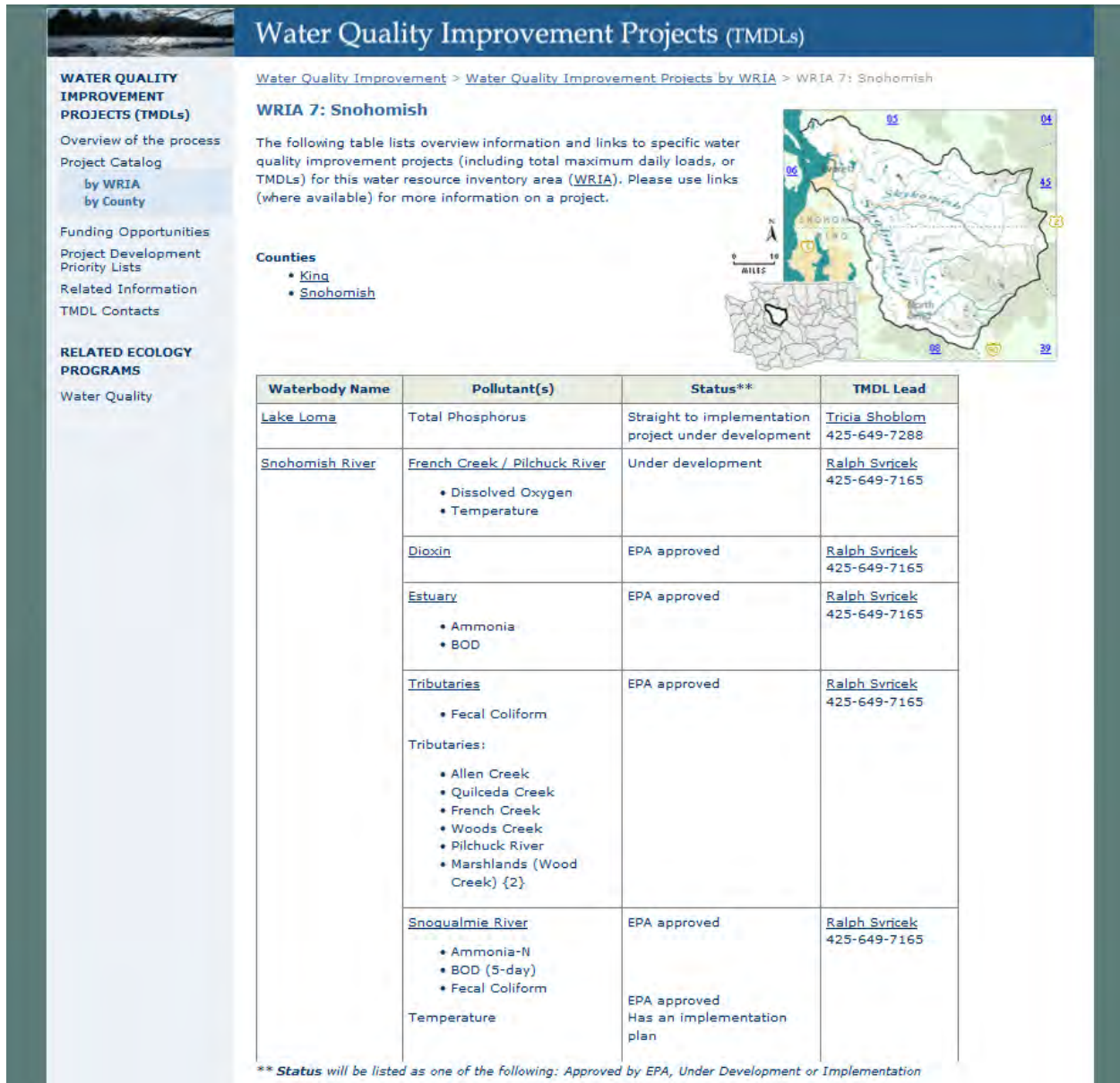


Figure 6. Screen-capture of TMDL list for WRIA in which unit is found - D3.3



Wetland name or number: C

# RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland C Date of site visit: 1/27/2015

Rated by: Kahlo, R; Lund, N Trained by Ecology?  Y  N Date of training: 09/2014

HGM Class used for rating: Depressional

Wetland has multiple HGM classes?  Y  N

**NOTE: Form is not complete without the figures requested** (*figures can be combined*).

Source of base aerial photo/map: Google Maps

## OVERALL WETLAND CATEGORY (based on functions or special characteristics )

### 1. Category of wetland based on FUNCTIONS

- Category I – Total score = 23 - 27
- Category II – Total score = 20 - 22
- Category III – Total score = 16 - 19
- Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <u>M</u> L	H <u>M</u> L	H M <u>L</u>	
Landscape Potential	H <u>M</u> L	<u>H</u> M L	H M <u>L</u>	
Value	<u>H</u> M L	H <u>M</u> L	H M <u>L</u>	<b>TOTAL</b>
Score Based on Ratings	7	7	3	17

**Score for each function based on three ratings**  
(*order of ratings is not important*)

9 = H,H,H  
 8 = H,H,M  
 7 = H,H,L  
 7 = H,M,M  
 6 = H,M,L  
 6 = M,M,M  
 5 = H,L,L  
 5 = M,M,L  
 4 = M,L,L  
 3 = L,L,L

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	<input type="checkbox"/>

Wetland name or number: C

## Maps and figures required to answer questions correctly for Western Washington

### Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	2
Map of the contributing basin	D 4.3, D 5.3	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

### Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

### Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

### Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	
Boundary of 150 ft buffer ( <i>can be added to another figure</i> )	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	



Wetland name or number: C

NO – go to 6

YES – The wetland class is **Riverine**

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

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 the wetland unit being scored.

**NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

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

Wetland name or number: C

**DEPRESSIONAL AND FLATS WETLANDS**

**Water Quality Functions - Indicators that the site functions to improve water quality**

<b>D 1.0. Does the site have the potential to improve water quality?</b>		
D 1.1. <b>Characteristics of surface water outflows from the wetland:</b> Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). <b>Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.</b> Wetland has an unconfined, or slightly constricted, surface outlet that is permanently flowing Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 3 points = 2 points = 1 points = 1	2
D 1.2. <b>The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions).</b> Yes = 4 No = 0		0
D 1.3. <b>Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):</b> <b>Wetland has persistent, ungrazed, plants &gt; 95% of area</b> Wetland has persistent, ungrazed, plants > 1/2 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants < 1/10 of area	points = 5 points = 3 points = 1 points = 0	5
D 1.4. <b>Characteristics of seasonal ponding or inundation:</b> <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > 1/2 total area of wetland Area seasonally ponded is > 1/4 total area of wetland Area seasonally ponded is < 1/4 total area of wetland	points = 4 points = 2 points = 0	2
Total for D 1	Add the points in the boxes above	9

**Rating of Site Potential** If score is:  12-16 = H  6-11 = M  0-5 = L *Record the rating on the first page*

<b>D 2.0. Does the landscape have the potential to support the water quality function of the site?</b>		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? *Mowing		1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source _____	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	2

**Rating of Landscape Potential** If score is:  3 or 4 = H  1 or 2 = M  0 = L *Record the rating on the first page*

<b>D 3.0. Is the water quality improvement provided by the site valuable to society?</b>		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	3

**Rating of Value** If score is:  2-4 = H  1 = M  0 = L *Record the rating on the first page*

Wetland name or number: C

**DEPRESSIONAL AND FLATS WETLANDS**

**Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation**

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	2
<b>Wetland has intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet</b>	<b>points = 2</b>	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: <i>Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.</i>		
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	3
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
<b>Marks are at least 0.5 ft to &lt; 2 ft from surface or bottom of outlet</b>	points = 3	
The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: <i>Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</i>		
The area of the basin is less than 10 times the area of the unit	points = 5	3
<b>The area of the basin is 10 to 100 times the area of the unit</b>	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	8

**Rating of Site Potential** If score is:  12-16 = H  6-11 = M  0-5 = L

Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	3

**Rating of Landscape Potential** If score is:  3 = H  1 or 2 = M  0 = L

Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.		
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	1
• <b>Surface flooding problems are in a sub-basin farther down-gradient.</b>	<b>points = 1</b>	
Flooding from groundwater is an issue in the sub-basin.	points = 1	
The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why _____	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	1

**Rating of Value** If score is:  2-4 = H  1 = M  0 = L

Record the rating on the first page

Wetland name or number: C

**These questions apply to wetlands of all HGM classes.**

**HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- Aquatic bed 4 structures or more: points = 4
  - Emergent 3 structures: points = 2
  - Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
  - Forested (areas where trees have > 30% cover) 1 structure: points = 0
- If the unit has a Forested class, check if:*
- 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

1

H 1.2. Hydroperiods

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 ac to count (*see text for descriptions of hydroperiods*).

- Permanently flooded or inundated 4 or more types present: points = 3
- Seasonally flooded or inundated 3 types present: points = 2
- Occasionally flooded or inundated 2 types present: points = 1
- Saturated only 1 type present: points = 0
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake Fringe wetland** **2 points**
- Freshwater tidal wetland** **2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>.

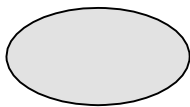
*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*

- If you counted: > 19 species points = 2
- 5 - 19 species points = 1
- < 5 species points = 0

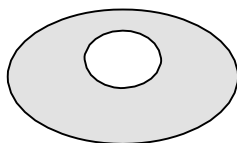
1

H 1.4. Interspersion of habitats

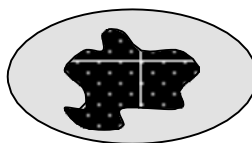
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



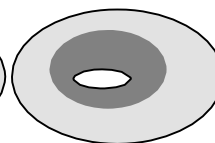
None = 0 points



Low = 1 point

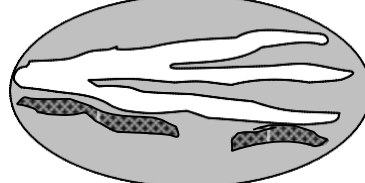
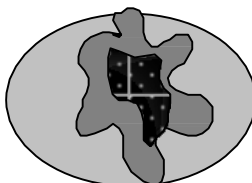
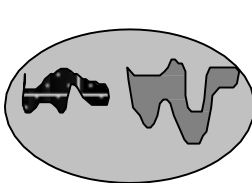


Moderate = 2 points



0

All three diagrams in this row are **HIGH** = 3 points



Wetland name or number: C

<p>H 1.5. Special habitat features:            Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (&gt; 4 in diameter and 6 ft long).</p> <p><input checked="" type="checkbox"/> Standing snags (dbh &gt; 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) <b>and/or</b> overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt; 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>		2
Total for H 1	Add the points in the boxes above	2

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?		
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat: <math>0 + [(\% \text{ moderate and low intensity land uses})0/2]</math>: <b>0%</b> If total accessible habitat is:</p> <p>&gt; 1/3 (33.3%) of 1 km Polygon <span style="float: right;">points = 3</span></p> <p>20-33% of 1 km Polygon <span style="float: right;">points = 2</span></p> <p>10-19% of 1 km Polygon <span style="float: right;">points = 1</span></p> <p>&lt; 10% of 1 km Polygon <span style="float: right;">points = 0</span></p>		
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat: <math>2 + [(\% \text{ moderate and low intensity land uses})0/2]</math>: <b>0 = 2%</b></p> <p>Undisturbed habitat &gt; 50% of Polygon <span style="float: right;">points = 3</span></p> <p>Undisturbed habitat 10-50% and in 1-3 patches <span style="float: right;">points = 2</span></p> <p>Undisturbed habitat 10-50% and &gt; 3 patches <span style="float: right;">points = 1</span></p> <p>Undisturbed habitat &lt; 10% of 1 km Polygon <span style="float: right;">points = 0</span></p>		
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>&gt; 50% of 1 km Polygon is high intensity land use <span style="float: right;">points = (- 2)</span></p> <p>≤ 50% of 1 km Polygon is high intensity <span style="float: right;">points = 0</span></p>		
Total for H 2	Add the points in the boxes above	-2

**Rating of Landscape Potential** If score is:  4-6 = H  1-3 = M  < 1 = L *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?		
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></p> <p>Site meets ANY of the following criteria: <span style="float: right;">points = 2</span></p> <p><input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page)</p> <p><input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)</p> <p><input type="checkbox"/> It is mapped as a location for an individual WDFW priority species</p> <p><input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources</p> <p><input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan</p> <p>Site has 1 or 2 priority habitats (listed on next page) within 100 m <span style="float: right;">points = 1</span></p> <p>Site does not meet any of the criteria above <span style="float: right;">points = 0</span></p>		

**Rating of Value** If score is:  2 = H  1 = M  0 = L *Record the rating on the first page*

Wetland name or number: C

## WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

- Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- 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 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- 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 – see web link above*).
- 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 – see web link on previous page*).
- Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number: C

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Estuarine wetlands</b></p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <p><input type="checkbox"/> The dominant water regime is tidal,</p> <p><input type="checkbox"/> Vegetated, and</p> <p><input type="checkbox"/> With a salinity greater than 0.5 ppt <span style="float:right"><input type="checkbox"/> Yes –Go to <b>SC 1.1</b> <input type="checkbox"/> No= <b>Not an estuarine wetland</b></span></p>	
<p>SC 1.1. Is the wetland 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?</p> <p align="right"><input type="checkbox"/> Yes = <b>Category I</b> <input type="checkbox"/> No - Go to <b>SC 1.2</b></p>	<b>Cat. I</b>
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25)</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <span style="float:right"><input type="checkbox"/> Yes = <b>Category I</b> <input type="checkbox"/> No= <b>Category II</b></span></p>	<p align="center"><b>Cat. I</b></p> <p align="center"><b>Cat. II</b></p>
<p><b>SC 2.0. Wetlands of High Conservation Value (WHCV)</b></p> <p>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <span style="float:right"><input type="checkbox"/> Yes – Go to <b>SC 2.2</b> <input type="checkbox"/> No – Go to <b>SC 2.3</b></span></p> <p>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? <span style="float:right"><input type="checkbox"/> Yes = <b>Category I</b> <input type="checkbox"/> No = <b>Not a WHCV</b></span></p> <p>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a> <span style="float:right"><input type="checkbox"/> Yes – <b>Contact WNHP/WDNR and go to SC 2.4</b> <input type="checkbox"/> No = <b>Not a WHCV</b></span></p> <p>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <span style="float:right"><input type="checkbox"/> Yes = <b>Category I</b> <input type="checkbox"/> No = <b>Not a WHCV</b></span></p>	<b>Cat. I</b>
<p><b>SC 3.0. Bogs</b></p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <span style="float:right"><input type="checkbox"/> Yes – Go to <b>SC 3.3</b> <input type="checkbox"/> No – Go to <b>SC 3.2</b></span></p> <p>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <span style="float:right"><input type="checkbox"/> Yes – Go to <b>SC 3.3</b> <input type="checkbox"/> No = <b>Is not a bog</b></span></p> <p>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <span style="float:right"><input type="checkbox"/> Yes = <b>Is a Category I bog</b> <input type="checkbox"/> No – Go to <b>SC 3.4</b></span></p> <p><b>NOTE:</b> If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> <p>SC 3.4. Is an area with peats or mucks forested (&gt; 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <span style="float:right"><input type="checkbox"/> Yes = <b>Is a Category I bog</b> <input type="checkbox"/> No = <b>Is not a bog</b></span></p>	<b>Cat. I</b>



# Appendix [ C ] — ECY 2014 Wetland Rating Form: Depressional figures

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Figure 1. Cowardin plant classes - D1.3, H1.1, H1.4

Figure 2. Hydrology: hydroperiods, outlets, and 150ft buffer - D1.1, D1.4, D4.1, H1.2, D2.2, D5.2

Figure 3. Contributing upland basin to wetland area - D4.3, D5.3

Figure 4. Accessible and undisturbed habitat 1km from wetland edge - H2.1, H2.2, H2.3

Figure 5. Screen-capture of 303(d) listed waters in basin - D3.1, D3.2

Figure 6. Screen-capture of TMDL list for WRIA - D3.3

## Resources and Links:

Snohomish County GIS

Washington Coastal Atlas

Google Earth

ECY 303(d) list

TMDL list

Figure 1. Cowardin plant classes - D1.3, H1.1, H1.4



**Note:** Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment.






LEGEND	
	Palustrine forested
	Palustrine scrub-shrub
	Palustrine emergent
	Palustrine aquatic bed
	Wetland boundary

Figure 2. Hydrology: hydroperiods, outlets, and 150ft buffer - D1.1, D1.4, D4.1, H1.2, D2.2, D5.2



**Note:** Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment

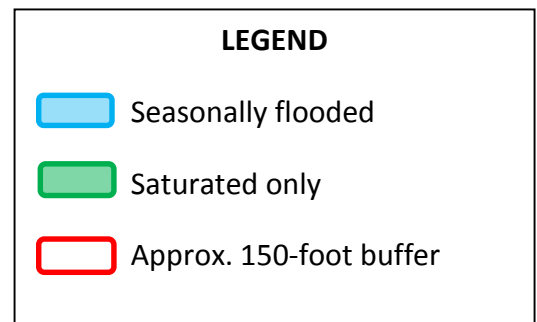


Figure 3. Contributing upland basin to wetland area - D4.3, D5.3



**Note:** Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment.



LEGEND	
	Wetland unit
	Approx. basin boundary

Figure 4. Accessible and undisturbed habitat 1km from wetland edge - H2.1, H2.2, H2.3



**Note:** Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment.

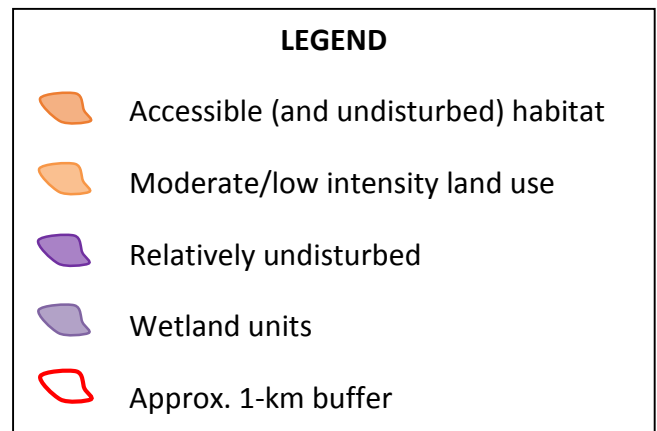


Figure 5. Screen-capture of 303(d) listed waters in basin - D3.1, D3.2

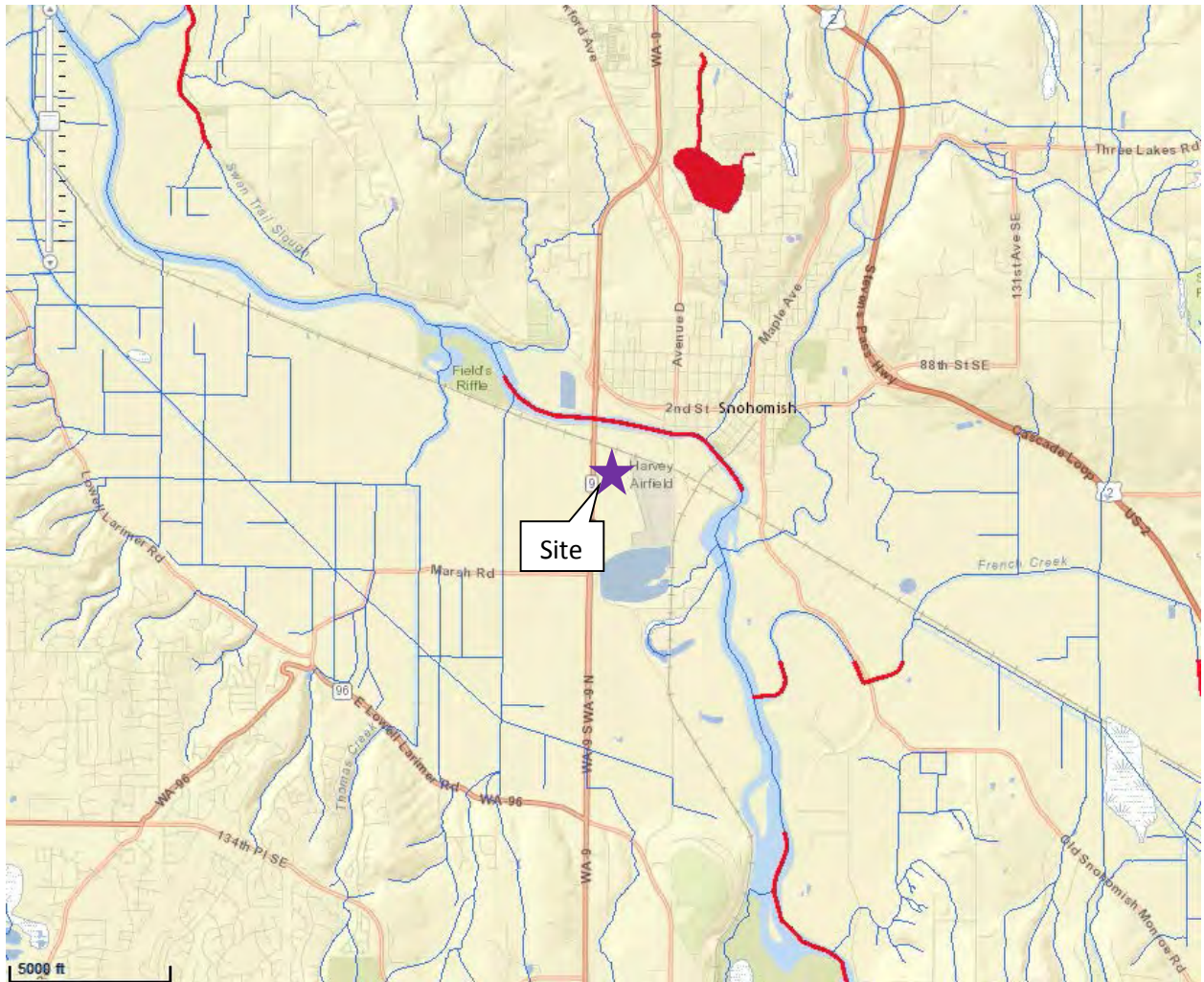



Figure 6. Screen-capture of TMDL list for WRIA in which unit is found - D3.3



**WATER QUALITY IMPROVEMENT PROJECTS (TMDLs)**

Overview of the process  
Project Catalog  
by WRIA  
by County

Funding Opportunities  
Project Development  
Priority Lists  
Related Information  
TMDL Contacts

**RELATED ECOLOGY PROGRAMS**

Water Quality

## Water Quality Improvement Projects (TMDLs)


[Water Quality Improvement](#) > [Water Quality Improvement Projects by WRIA](#) > WRIA 7: Snohomish

### WRIA 7: Snohomish

The following table lists overview information and links to specific water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.

**Counties**

- [King](#)
- [Snohomish](#)



Waterbody Name	Pollutant(s)	Status**	TMDL Lead
<a href="#">Lake Loma</a>	Total Phosphorus	Straight to implementation project under development	<a href="#">Tricia Shoblom</a> 425-649-7288
<a href="#">Snohomish River</a>	<a href="#">French Creek / Pilchuck River</a>	Under development	<a href="#">Ralph Svrcek</a> 425-649-7165
	<ul style="list-style-type: none"> <li>• Dissolved Oxygen</li> <li>• Temperature</li> </ul>		
	<a href="#">Dioxin</a>	EPA approved	<a href="#">Ralph Svrcek</a> 425-649-7165
	<a href="#">Estuary</a>	EPA approved	<a href="#">Ralph Svrcek</a> 425-649-7165
	<ul style="list-style-type: none"> <li>• Ammonia</li> <li>• BOD</li> </ul>		
<a href="#">Tributaries</a>	<ul style="list-style-type: none"> <li>• Fecal Coliform</li> </ul>	EPA approved	<a href="#">Ralph Svrcek</a> 425-649-7165
	Tributaries: <ul style="list-style-type: none"> <li>• Allen Creek</li> <li>• Quilceda Creek</li> <li>• French Creek</li> <li>• Woods Creek</li> <li>• Pilchuck River</li> <li>• Marshlands (Wood Creek) {2}</li> </ul>		
<a href="#">Snoqualmie River</a>	<ul style="list-style-type: none"> <li>• Ammonia-N</li> <li>• BOD (5-day)</li> <li>• Fecal Coliform</li> </ul>	EPA approved	<a href="#">Ralph Svrcek</a> 425-649-7165
	Temperature	EPA approved Has an implementation plan	

**\*\* Status will be listed as one of the following: Approved by EPA, Under Development or Implementation**

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

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