

July 18, 2014

Ron Hanson
City of Kirkland Planning Department
123 5th Avenue
Kirkland, WA 98033

Re: Bakhchinyan Property Wetland Delineation Report

The Watershed Company Reference Number: 120622.62

Dear Ron:

On July 7, 2014, Ecologist Katy Crandall and I visited the Bakhchinyan property located at 9032 116th Avenue NE in Kirkland (Parcel #1238501180). The purpose of our visit was to conduct a wetland delineation study on the property. This letter summarizes the findings of this study and details applicable federal, state, and local regulations. The following attachments are included:

- Wetland Delineation Sketch
- Wetland Determination Data Forms
- Wetland Rating Forms (Kirkland and Ecology)

Methods

Public-domain information on the subject properties was reviewed for this delineation study. These sources include USDA Natural Resources Conservation Service Soil maps, U.S. Fish and Wildlife Service National Wetland Inventory maps, Washington Department of Ecology (Ecology) interactive mapping program (Washington Coastal Atlas), Washington Department of Fish and Wildlife interactive mapping programs (PHS on the Web and SalmonScape), *Kirkland's Streams, Wetlands and Wildlife Study* (The Watershed Company, 1998) (Kirkland Inventory), City of Kirkland GIS Mapping website, and King County's GIS mapping website (iMAP).

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 boundary was 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 two of these locations.

Delineated wetlands were classified using the *City of Kirkland Wetland Field Data Form* (Kirkland Rating System) and the *Western Washington Wetland Rating System* (Ecology, 2014 Update) (2014 Ecology Rating System). Wetland A is marked with 14 pink- and black-striped flags.

Determining the location of the subject property in relation to the encompassing drainage basin involved a comparison of several different basin maps and an analysis of LIDAR topography depicted on GIS mapping programs.

Findings

The property is located in a residential neighborhood in the Moss Bay Drainage Basin – a secondary basin; Section 22, Township 25 North, Range 5E; Cedar-Sammamish Water Resource Inventory Area (WRIA 8). The Kirkland Inventory and the Washington Coastal Atlas both depict the subject property as located in the Forbes Creek Drainage Basin (a primary basin), while Kirkland GIS mapping and King County iMAP both depict the subject property as located in the Moss Bay Drainage Basin. A review of area topographic maps suggests that beginning just north and east of the subject property all drainage is naturally conveyed towards the southwest, which is directed towards Moss Bay, not Forbes Creek. Therefore, it is our conclusion that the subject property is located in the Moss Bay Drainage Basin.

The approximately 0.6-acre property contains one single-family residence with associated lawn and driveway areas. The developed areas are located on the western portion of the property, while the eastern portion is generally undeveloped. The undeveloped areas contain a forest and scrub-shrub vegetation community, including western red-cedar, bigleaf maple, Himalayan blackberry, and sword fern in the non-wetland areas. One wetland, Wetland A (see below), is located in the eastern portion of the property.

Wetland A

Wetland A is a scrub-shrub wetland dominated by Douglas spirea, twinberry, Himalayan blackberry, lady fern, and reed canarygrass. The indicator soil in Wetland A is a dark greyish brown (10YR 4/2) sandy loam with redoximorphic features. The soil satisfies the criteria for the hydric soil indicator Depleted Matrix (F3). Hydrology for Wetland A is provided by a seasonally-high groundwater table and is supplemented by stormwater discharge from the neighboring residences. The soil was not saturated during the July inspection; however, two primary hydrology indicators – Algal Mat or Crust (B4) and Water Stained Leaves (B9) were observed. Per the Regional Supplement, only one primary hydrology indicator is required to confirm wetland hydrology. These two indicators suggest inundation is present in the wetland for a significant portion of the year. It is common for wetlands of this type to dry out completely by late spring or early summer.

Local Regulations

Wetlands in Kirkland are regulated under Chapter 90 of the Kirkland Zoning Code (KZC). Under KZC, wetlands are classified as one of three types based on the Kirkland Rating System. According to the Rating System, Wetland A does not satisfy any of the criteria specific to Type 1 wetlands. Based on the functional scoring, Wetland A received a total of eight points. This score qualifies Wetland A as a Type 3 wetland.

Wetland buffers in Kirkland are determined based on the wetland type and whether the encompassing drainage basin is a primary or secondary basin. The standard buffer for Type 3 wetlands located in a secondary basin is 25 feet (KZC 90.45.1). However, Type 3 wetlands that are less than 2,500 square feet and located in a secondary basin are exempt from local regulation (KZC 90.20.3). Based on field observations, Wetland A may be less than 2,500 square feet. Following completion of an official survey as required in KZC 90.40 3b, if Wetland A is determined to be less than 2,500 square feet, it will not be regulated by the City of Kirkland, and no buffer shall be applied.

State and Federal Regulations

Wetland A scored a total of 16 points on the 2014 Ecology Rating System. While this system is not currently in use by Kirkland, it was recently adopted for use by Ecology and is suitable for supporting documentation submitted to Corps and Ecology.

Wetlands are also regulated by the Corps under section 404 of the Clean Water Act, regardless of the wetland size. Any filling of Waters of the State, including wetlands (except isolated wetlands), would require notification and permits from the Corps. Wetland A may be considered isolated, as no connection to any other Water of the State was observed, in our opinion. However, if smaller than 2,500 square feet and if changes to this wetland are planned, a formal isolated status inquiry should be requested from the Corps through the Jurisdictional Determination process. Application for Corps permits may also require an individual 401 Water Quality Certification and Coastal Zone Management Consistency determination from Ecology. If Wetland A is determined to be isolated, and therefore not regulated by the Corps, it will still be regulated by Ecology. All direct impacts to Wetland A would require authorization from Ecology.

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. If no direct impacts to Wetland A are proposed, state and federal permits would not be required.

Disclaimer

The information contained in this letter or report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals

and criteria outlined in the methods section. 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.

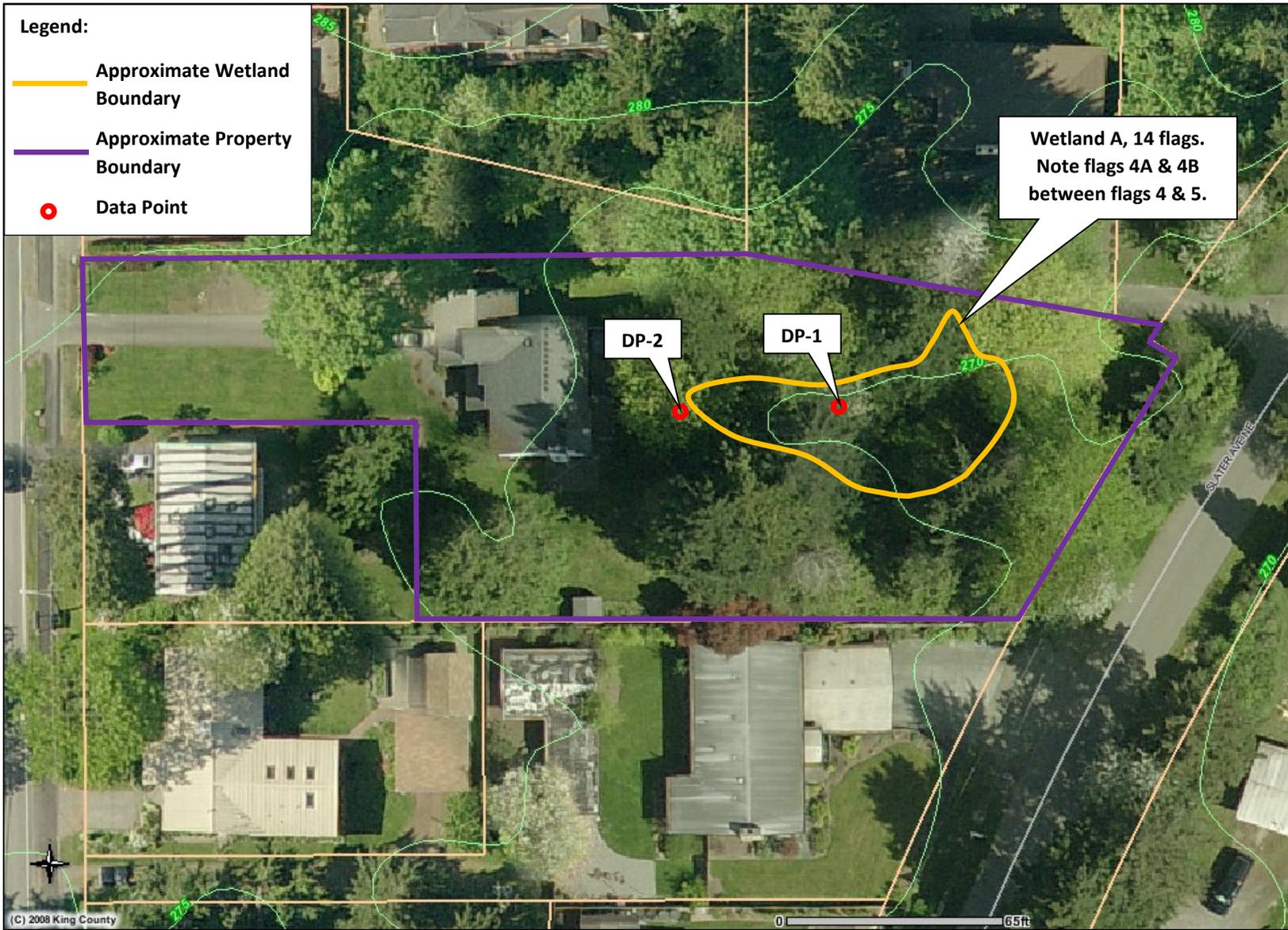
Please call if you have any questions or if we can provide you with any additional information.

Sincerely,

A handwritten signature in blue ink, appearing to read "R. Kahlo". The signature is fluid and cursive, with the first letter of each name being capitalized and prominent.

Ryan Kahlo, PWS
Ecologist

Enclosures



Legend:

- Approximate Wetland Boundary
- Approximate Property Boundary
- Data Point

Wetland A, 14 flags.
Note flags 4A & 4B
between flags 4 & 5.

DP-2

DP-1

Note:
Areas depicted have not been surveyed. All locations are approximate and not to scale.

Wetland Delineation Sketch
Bakhchinyan Property (Parcel #1238501180)
Prepared for Ron Hanson, City of Kirkland
July 7, 2014
TWC Project #120622.62

Wetland boundary is marked with pink- and black-striped flags.
Data points are marked with yellow- and black-striped flags.



750 Sixth Street South | Kirkland | WA 98033
p 425.822.5242 f 425.827.8136

DP-1

Project Site: Kirkland Bakhchinyan			Sampling Date: 7/7/2014		
Applicant/Owner: Bakhchinyan			Sampling Point: DP- 1		
Investigator: Kahlo, R; Crandall, K			City/County: Kirkland		
Sect., Township, Range: S 4 T 25N R 5E			State: WA		
Landform (hillslope, terrace, etc): Depression		Slope (%): None		Local relief (concave, convex, none): Concave	
Subregion (LRR): A		Lat: _____		Long: _____ Datum: _____	
Soil Map Unit Name: AgC		NW1 classification: None			
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			(If no, explain in remarks.)		
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?					
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?			(If needed, explain any answers in Remarks.)		

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

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

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: 3 (A) Total Number of Dominant Species Across All Strata: 3 (B) Percent of Dominant Species that are OBL, FACW, or FAC: 100 (A/B)																					
2. _____																									
3. _____																									
4. _____																									
_____ = Total Cover																									
Sapling/Shrub Stratum (Plot size 3m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1. <i>Spiraea douglasii</i>	55	Yes	FACW	<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. <i>Populus balsamifera</i>	7	No	FAC																						
3. _____																									
4. _____																									
5. _____																									
_____ = Total Cover																									
Herb Stratum (Plot size 1m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1. <i>Phalaris arundinacea</i>	10	Yes	FACW	Prevalence Index = B / A = _____ Hydrophytic Vegetation Indicators X Dominance test is > 50% Prevalence test is ≤ 3.0 * Morphological Adaptations * (provide supporting data in remarks or on a separate sheet) Wetland Non-Vascular Plants * Problematic Hydrophytic Vegetation * (explain)																					
2. <i>Solanum dulcamara</i>	5	Yes	FAC																						
3. _____																									
4. _____																									
5. _____																									
6. _____																									
7. _____																									
8. _____																									
9. _____																									
10. _____																									
11. _____																									
_____ = 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:																									

SOIL

Sampling Point – DP-1

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 ¹	Loc ²		
0-10	10YR 2/2	95	10YR 3/2	5	C	M	Silt loam	
10-14	10YR 4/2 10YR 3/1	60 20	10YR 3/6	20	C	M	Sandy loam	Mixed matrix

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

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

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

Indicators for Problematic Hydric Soils³

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

³ 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:

HYDROLOGY

Wetland Hydrology Indicators:

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

<input type="checkbox"/> Surface water (A1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> High Water Table (A2)	<input checked="" 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 checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (explain in remarks)

Secondary Indicators (2 or more required):

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

Field Observations

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

Wetland Hydrology Present? Yes No

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

Remarks:

DP-

Project Site: Kirkland Bakhchinyan			Sampling Date: 7/7/2014		
Applicant/Owner: Bakhchinyan			Sampling Point: DP-		
Investigator: Kahlo, R; Crandall, K			City/County: Kirkland		
Sect., Township, Range: S 4 T 25N R 5E			State: WA		
Landform (hillslope, terrace, etc): Hillslope		Slope (%): 10		Local relief (concave, convex, none): Concave	
Subregion (LRR): A	Lat	Long	Datum		
Soil Map Unit Name: AgC	NW1 classification: None				
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			(If no, explain in remarks.)		
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?					
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?			(If needed, explain any answers in Remarks.)		

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																						
1. <i>Acer macrophyllum</i>	55	Yes	FACU	Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)																						
2. <i>Thuja plicata</i>	80	Yes	FAC	Total Number of Dominant Species Across All Strata: 4 (B)																						
_____ = Total Cover				Percent of Dominant Species that are OBL, FACW, or FAC: 25 (A/B)																						
Sapling/Shrub Stratum (Plot size 3m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																						
1. <i>Ilex aquifolium</i>	5	Yes	FACU																							
_____ = Total Cover				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">Total % Cover of</th> <th style="text-align: center;">Multiply by</th> </tr> <tr> <td>OBL species</td> <td></td> <td style="text-align: center;">x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td style="text-align: center;">x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td style="text-align: center;">x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td style="text-align: center;">x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td style="text-align: center;">x 5 =</td> </tr> <tr> <td>Column totals</td> <td style="text-align: center;">(A)</td> <td style="text-align: center;">(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)																								
Prevalence Index = B / A =																										
Herb Stratum (Plot size 1m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators																						
1.																										
_____ = Total Cover				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Dominance test is > 50%</td> </tr> <tr> <td>Prevalence test is ≤ 3.0 *</td> </tr> <tr> <td>Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)</td> </tr> <tr> <td>Wetland Non-Vascular Plants *</td> </tr> <tr> <td>Problematic Hydrophytic Vegetation * (explain)</td> </tr> </table>		Dominance test is > 50%	Prevalence test is ≤ 3.0 *	Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)	Wetland Non-Vascular Plants *	Problematic Hydrophytic Vegetation * (explain)																
Dominance test is > 50%																										
Prevalence test is ≤ 3.0 *																										
Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)																										
Wetland Non-Vascular Plants *																										
Problematic Hydrophytic Vegetation * (explain)																										
* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																										
Woody Vine Stratum (Plot size)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																						
1. <i>Hedera helix</i>	50	Yes	FACU																							
_____ = Total Cover																										
% Bare Ground in Herb Stratum _____																										
Remarks: *Presumed FAC																										

SOIL

Sampling Point – DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 2/2	100					Sandy loam	
5-12	10YR 3/4	100					Gravelly sandy loam	

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

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

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

Indicators for Problematic Hydric Soils³

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

³ 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:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required):

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

Field Observations

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

Wetland Hydrology Present? Yes No

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

Remarks:

**WETLAND FIELD DATA FORM – Backchinyan property located at
9032 116th Avenue NE, Kirkland, WA 98033.**

Rating done on July 7, 2014, by The Watershed Company.



WETLAND FIELD DATA FORM

BEGIN BY CHECKING ANY OF THE FOLLOWING (a. – e.) THAT APPLY:

- a. The wetland is contiguous to Lake Washington;
- b. The wetland contains at least 1/4 acre of organic soils, such as peat bogs or mucky soils;
- c. The wetland is equal to or greater than 10 acres in size and having three or more wetland classes, as defined by the U.S. Fish & Wildlife Service (Cowardin et al., 1979), one of which is open water;
- d. The wetland has significant habitat value to state or federally listed threatened or endangered wildlife species; or
- e. The wetland contains state or federally listed threatened or endangered plant species.

IF ANY OF THE CRITERIA LISTED ABOVE ARE MET, THEN THE WETLAND IS CONSIDERED TO BE TYPE 1. IF THAT IS THE CASE, PLEASE CONTINUE TO COMPLETE THE ENTIRE FORM, BUT DO NOT ASSIGN POINTS.

IF THE WETLAND DOES NOT MEET THE CRITERIA LISTED ABOVE FOR TYPE 1, COMPLETE THE ENTIRE FORM, USING THE ASSIGNED POINTS TO DETERMINE IF IT IS A TYPE 2 OR TYPE 3 WETLAND.

Type 2 wetlands typically have at least two wetland vegetation classes, are at least partially surrounded by buffers of native vegetation, connected by surface water flow (perennial or intermittent) to other wetlands or streams, and contain or are associated with forested habitat.

1. Total wetland area

Estimate wetland area and score from choices Acres	Point Value	<u>Points</u>
>20.00 =	6	
10-19.99 =	5	
5-9.99 =	4	
1-4.99 =	3	
0.1-0.99 =	2	
<0.1 =	1	1

(1 point)

2. Wetland classes: Determine the number of wetland classes that qualify, and score according to the table.

	# of Classes	Points
Open Water: if the area of open water is >1/3 acre or >10% of the total wetland area	1	= 1
Aquatic Beds: if the area of aquatic beds is >10% of the open water area or >1/2 acre	2	= 3
Emergent: if the area of emergent class is >1/2 acre or >10% of the total wetland area	3	= 5
Scrub-Shrub: if the area of scrub-shrub class is >1/2 acre or >10% of the total wetland area	4	= 7
Forested: if the area of forested class is >1/2 acre or >10% of the total wetland area	5	= 10

(1 point)

3. Plant species diversity.

For all wetland classes which qualified in 2 above, count the number of different plant species and score according to the table below. You do not have to name them.

e.g., if a wetland has an aquatic bed class with 3 species, and emergent class with 4 species and a scrub-shrub class with 2 species, you would circle 2, 2, and 1 in the second column (below).

Class	# of Species	Point Value	Class	# of Species	Point Value
Aquatic Bed	1-2	= 1	Scrub-Shrub	1-2	= 1
	3	= 2		3-4	= 2
	>3	= 3		>4	= 3
Emergent	1-2	= 1	Forested	1-2	= 1
	3-4	= 2		3-4	= 2
	>4	= 3		>4	= 3

(3 points)

4. Structural diversity.

If the wetland has a forested class, add 1 point for each of the following attributes present:

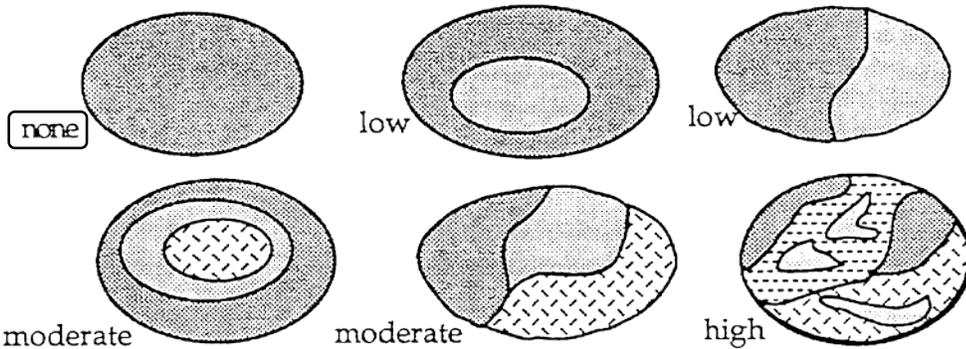
- Trees >50' tall = 1
- Trees 20' to 49' tall = 1
- shrubs = 1
- Herbaceous ground cover = 1

(0 points)

5. Interspersion between wetland classes.

Decide from the diagrams below whether interspection between wetland classes is high, moderate, low or none

- 3 = High
- 2 = Moderate
- 1 = Low
- 0 = None



(0 points)

6. Habitat features

Add points associated with each habitat feature listed:

- Is there evidence of current use by beavers? = 3
- Is a heron rookery located within 300'? = 2
- Are raptor nest(s) located within 300'? = 1
- Are there at least 2 standing dead trees (snags) per acre? = 1
- Are there any other perches (wires, poles, or posts)? = 1
- Are there at least 3 downed logs per acre? = 1

(0 points)

7. Connection to streams

Is the wetland connected at any time of the year via surface water? **(score one answer only)**

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

- To a perennial stream or a seasonal stream *with* fish = 5
- To a seasonal stream *without* fish = 3
- Is not connected to any stream = 0

(0 points)

8. Buffers

Step 1: Estimate (to the nearest 5%) the percentage of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply these percentages by the factor(s) below and enter result in the column to the right.

	% of Buffer	Step 1	Width Factor	Step 2
Roads, buildings or parking lots	<u>10%</u>	X 0 = _____	_____ =	<u>0</u>
Lawn, grazed pasture, vineyards or annual crops	_____ %	X 1 = _____	_____ =	_____
Ungrazed grassland or orchards	_____ %	X 2 = _____	_____ =	_____
Open water or native grasslands	_____ %	X 3 = _____	_____ =	_____
Forest or shrub	<u>90%</u>	X 4 = <u>360</u>	<u>1</u> =	<u>360</u>
			Add buffer total	<u>360</u>

Step 2: Multiply result(s) of step 1:

By 1 if buffer width is 25-50'

By 2 if buffer width is 50-100'

By 3 if buffer width is >100'

Enter results and add subscores

Step 3: Score points according to the following table:

Buffer Total

900-1200 = 4

600-899 = 3

300-599 = 2

100-299 = 1

(2 points)

9. Connection to other habitat areas:

Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor >100' wide with good forest or shrub cover to any other habitat area? = 5

Is there a narrow corridor <100' wide with good cover or a wide corridor >100' wide with low cover to any other habitat area? = 3

Is there a narrow corridor <100' wide with low cover or a significant habitat area within 0.25 mile but no corridor? **(Forbes Lake < 0.25 miles)** = 1

Is the wetland and buffer completely isolated by development and/or cultivated agricultural land? = 0

(1 point).

10. Scoring

Add the scores to get a total: 8

Question: Is the total greater than or equal to 22 points?

Answer:

Yes = Type 2

No = Type 3

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Bakhchinyan Wetland A Date of site visit: 7/7/14

Rated by R. Kahlo, PWS _____ Trained by Ecology? Yes No _____ Date of training 3/2009

HGM Class Used for Rating: Depressional Unit 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 King County iMAP

OVERALL WETLAND CATEGORY III (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

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	<i>Circle the appropriate ratings</i>			
Site Potential	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L	
Landscape Potential	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L	
Value	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L	H <input type="checkbox"/> M <input checked="" type="checkbox"/> L	H <input checked="" type="checkbox"/> M <input type="checkbox"/> L	TOTAL
Score Based on Ratings	6	6	4	16

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland with 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	NA

Wetland name or number A

Maps and figures required to answer questions correctly (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	3
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D1.4	NA
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	D 2.2, D 5.2	1
Polygon of area 1km from wetland edge - Including polygons for accessible habitat and undisturbed habitat	H 2.1, H2.2	2
Screen capture of map of 303d listed waters in basin (from Ecology web site)	D 3.1, D 3.2	4
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	D 3.3	5

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 150 ft buffer (<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	
Polygon of area 1km from wetland edge -Including polygons for accessible habitat and undisturbed habitat	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	R 3.1	
Screen capture of list of TMDL's 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 150 ft buffer (<i>can be added to another figure</i>)	L 2.2	
Polygon of area 1km from wetland edge (Including polygons for accessible habitat and undisturbed habitat)	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	L 3.1	
Screen capture of list of TMDL's 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 dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid 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	
Polygon of area 1km from wetland edge (Including polygons for accessible habitat and undisturbed habitat)	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	S 3.1, S 3.2	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

For questions 1-7 the criteria described must apply to the entire unit being rated.

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

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

NO – go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

YES – **Freshwater Tidal Fringe** NO – **Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3

YES – The wetland class is **Flats**

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

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

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

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

NO – go to 4

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

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

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

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

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

NO - go to 5

YES – The wetland class is **Slope**

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

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

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

The overbank flooding occurs at least once every two years.

Wetland name or number A

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 _____

DEPRESSIONAL AND FLATS WETLANDS
Water Quality Functions - Indicators that the site functions to improve water quality.

D 1.0 Does the wetland unit have the potential to improve water quality?		
D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression or "flat depression" (QUESTION 7 on key) with no surface water leaving it (no outlet) points =3 Unit has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Unit is a "flat" depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		3
D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES: points = 4 NO: points = 0		0
D 1.3 Characteristics of persistent plants (emergent, shrub, and/or forest Cowardin class) Unit has persistent, ungrazed, plants ≥ 95% of area points = 5 Unit has persistent, ungrazed, plants ≥ 1/2 of area points = 3 Unit has persistent, ungrazed plants ≥ 1/10 of area points = 1 Unit has persistent, ungrazed plants <1/10 of area points = 0		3
D 1.4 Characteristics of seasonal ponding or inundation <i>This is the area of the wetland unit that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0		4
Total for D 1	Add the points in the boxes above	10

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

D 2.0 Does the landscape have the potential to support the water quality function at the site?		
D 2.1 Does the Wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2 Is > 10% of the buffer within 150 ft of wetland unit in land uses that generate pollutants	Yes = 1 No = 0	1
D 2.3 Are there septic systems within 250 ft of the wetland unit?	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*

D 3.0 Is the water quality improvement provided by the site valuable to society?		
D 3.1 Does the unit discharge directly (i.e.. within 1 mile) to a stream, river, or lake that is on the 303d list?	Yes = 1 No = 0	0
D 3.2 Is the unit 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 unit is found)	Yes = 2 No = 0	0
Total for D 3	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 _____

DEPRESSIONAL AND FLATS WETLANDS

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

D 4.0 Does the wetland unit have the potential to reduce flooding and erosion?		
D 4.1 Characteristics of surface water flows out of the wetland:		
Unit is a depression or "flat depression" with no surface water leaving it (no outlet)	points = 4	4
Unit has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Unit is a "flat" depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 1	
Unit 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 units 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	0
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	
Unit is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 inches)	points = 0	
D 4.3 Contribution of unit 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
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	
Entire unit is in the FLATS class	points = 5	
Total for D 4	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

D 5.0 Does the landscape have the potential to support hydrologic functions at the site?		
D 5.1 Does the unit receive any stormwater discharges?	Yes = 1 No = 0	1
D5.2 Is >10% of the land use within 150 ft of the wetland in a land use that generates runoff?	Yes = 1 No = 0	1
D 5.3 Is more than 25% of the contributing basin of the wetland unit covered with intensive human land uses (residential at >1 residence/acre, 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** **1,2 = 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. <i>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.</i>		
• The wetland captures surface water that would otherwise flow downgradient into areas where flooding has damaged human or natural resources (e.g., salmon redds),		0
o Damage occurs in sub-basin that is immediately down-gradient of unit.	points = 2	
o Damage occurs in a sub-basin further 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. <i>Explain why</i> _____	points = 0	
• There are no problems with flooding downstream of the unit.	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

Wetland name or number _____

These questions apply to wetlands of all HGM classes.

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

H 1. Does the wetland unit have the potential to provide habitat for many species?

H 1.1 Structure of plant community – indicators are Cowardin classes and layers in forest. Check the Cowardin plant classes in unit – Polygons for each class must total ¼ acre, or more than 10% of the unit if it is smaller than 2.5 acres.

Add the number of structures checked

- | | | | |
|---|----------------------|------------|---|
| <input type="checkbox"/> Aquatic bed | 4 structures or more | points = 4 | 0 |
| <input type="checkbox"/> Emergent plants | 3 structures | points = 2 | |
| <input checked="" type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) | 2 structures | points = 1 | |
| <input type="checkbox"/> 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

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 acre to count (see text for descriptions of hydroperiods).

- | | | | |
|---|-------------------------|------------|---|
| <input type="checkbox"/> Permanently flooded or inundated | 4 or more types present | points = 3 | 1 |
| <input checked="" type="checkbox"/> Seasonally flooded or inundated | 3 types present | points = 2 | |
| <input checked="" type="checkbox"/> Occasionally flooded or inundated | 2 types present | points = 1 | |
| <input type="checkbox"/> 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

H 1.3. Richness of Plant Species

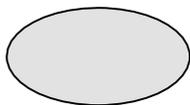
Count the number of plant species in the wetland unit that cover at least 10 ft².

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**

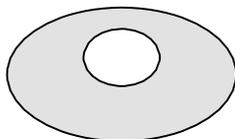
- | | | | |
|-----------------|----------------|------------|---|
| If you counted: | > 19 species | points = 2 | 1 |
| | 5 - 19 species | points = 1 | |
| | < 5 species | points = 0 | |

H 1.4. Interspersion of habitats

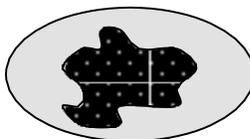
Decide from the diagrams below whether interspersion between Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



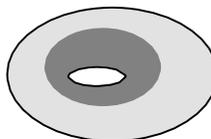
None = 0 points



Low = 1 point

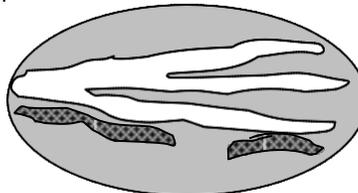
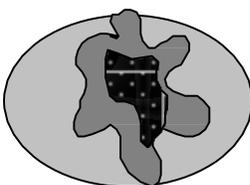
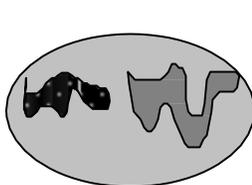


Moderate = 2 points



NOTE: If you have four or more classes or three plants classes and open water the rating is always "high."

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



0

Wetland name or number _____

<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>___ Large, downed, woody debris within the unit (>4 inches diameter and 6 ft long).</p> <p>___ Standing snags (diameter at the bottom > 4 inches) within the unit</p> <p>___ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging plants extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)</p> <p>___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree 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>___ At least ¼ acre 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>___ 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
H 1. TOTAL Score - potential for providing habitat	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 habitat at the site?									
<p>H 2.1 Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p>Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] = _____</p> <p>If total accessible habitat is:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">> 1/3 (33.3%) of 1 km circle (~100 hectares or 250 acres)</td> <td style="width: 40%; text-align: right;">points = 3</td> </tr> <tr> <td>20 - 33% of 1 km circle</td> <td style="text-align: right;">points = 2</td> </tr> <tr> <td>10 - 19% of 1 km circle</td> <td style="text-align: right;">points = 1</td> </tr> <tr> <td><10% of 1 km circle</td> <td style="text-align: right;">points = 0</td> </tr> </table>	> 1/3 (33.3%) of 1 km circle (~100 hectares or 250 acres)	points = 3	20 - 33% of 1 km circle	points = 2	10 - 19% of 1 km circle	points = 1	<10% of 1 km circle	points = 0	0
> 1/3 (33.3%) of 1 km circle (~100 hectares or 250 acres)	points = 3								
20 - 33% of 1 km circle	points = 2								
10 - 19% of 1 km circle	points = 1								
<10% of 1 km circle	points = 0								
<p>H 2.2 Undisturbed habitat in 1 km circle around unit.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Undisturbed habitat > 50% of circle</td> <td style="width: 40%; text-align: right;">points = 3</td> </tr> <tr> <td>Undisturbed habitat 10 - 50% and in 1-3 patches</td> <td style="text-align: right;">points = 2</td> </tr> <tr> <td>Undisturbed habitat 10 - 50% and > 3 patches</td> <td style="text-align: right;">points = 1</td> </tr> <tr> <td>Undisturbed habitat < 10% of circle</td> <td style="text-align: right;">points = 0</td> </tr> </table>	Undisturbed habitat > 50% of circle	points = 3	Undisturbed habitat 10 - 50% and in 1-3 patches	points = 2	Undisturbed habitat 10 - 50% and > 3 patches	points = 1	Undisturbed habitat < 10% of circle	points = 0	1
Undisturbed habitat > 50% of circle	points = 3								
Undisturbed habitat 10 - 50% and in 1-3 patches	points = 2								
Undisturbed habitat 10 - 50% and > 3 patches	points = 1								
Undisturbed habitat < 10% of circle	points = 0								
<p>H 2.3 Land use intensity in 1 km circle. If:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 40%;">> 50% of circle is high intensity land use</td> <td style="width: 20%; text-align: center;">points = (- 2)</td> <td style="width: 40%;"><=50% of circle is high intensity</td> <td style="width: 20%; text-align: center;">points = 0</td> </tr> </table>	> 50% of circle is high intensity land use	points = (- 2)	<=50% of circle is high intensity	points = 0	-2				
> 50% of circle is high intensity land use	points = (- 2)	<=50% of circle is high intensity	points = 0						
Total for H 2 Add the points in the boxes above	-1								

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>H3.1 Does the site provides habitat for species valued in laws, regulations or policies? (<i>choose only the highest score</i>)</p> <p>Site meets ANY of the following criteria: points = 2</p> <ul style="list-style-type: none"> • It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) • It is a "priority area" for an individual WDFW species • It is a Wetland With a High Conservation Value as determined by the Department of Natural Resources • It has 3 or more priority habitats within 100m (see next page) • 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>Site has 1 or 2 priority habitats within 100m (see next page) points = 1</p> <p>Site does not meet any of the criteria above points = 0</p>	1

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

Wetland name or number _____

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>.)

Count how many of the following priority habitats are within 330 ft (100m) 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 0.4 ha (1 acre).

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

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

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

___ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158 – 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 7.6 m (25 ft) high and occurring below 5000 ft.

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

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

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 _____

Wetland name or number _____

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>	
SC 1.0 Estuarine wetlands Does the wetland unit meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2	Cat. I
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? <div style="text-align: center;">YES = Category I NO = Category II</div> — 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) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	Cat. I Cat. II
SC 2.0 Wetlands with High Conservation Value (WHCV) SC 2.1 Has the Department of Natural Resources updated their web site to include the list of Wetlands with High Conservation Value? YES - Go to SC 2.2 NO – Go to SC 2.3 SC 2.2 Is the wetland unit you are rating listed on the DNR database as having a High Conservation Value? YES = Category I NO = not a WHCV SC 2.3 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf YES – contact WNHP/DNR and go to SC 2.4 NO = not a WHCV SC 2.4 Has DNR identified the wetland within the S/T/R as a wetland with High Conservation value and is listed on their web site? YES = Category I NO = not an WHCV	Cat. I
SC 3.0 Bogs Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? YES - go to Question SC 3.3 NO - go to Question SC 3.2 SC 3.2 Does an area within the wetland unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? YES - go to Question SC 3.3 NO - Is not a bog 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? YES – Is a Category I BOG NO - go to Question SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species are present in Table 4, the wetland is a bog. SC 3.4 Is an area with peats or mucks forested (> 30% cover) with Sitka Spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s 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. YES – Is a Category I BOG NO - Is not a bog	Cat. I

Wetland name or number _____

<p>SC 4.0 Forested Wetlands</p> <p>Does the wetland unit have at least <u>1 contiguous acre</u> of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — Old-growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. — Mature forests: (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 inches (53cm). <p style="text-align: center;">YES = Category I NO - not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0 Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — 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 — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 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 style="text-align: center;">YES = Go to SC 5.1 NO- not a wetland in a coastal lagoon</p> <p>SC 5.1 Does the wetland meets all of the following three conditions?</p> <ul style="list-style-type: none"> — 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. 99). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than 1/10 acre (4350 square feet) <p style="text-align: center;">YES = Category I NO = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0 Interdunal Wetlands</p> <p>Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?</p> <p style="text-align: center;">YES - go to SC 6.1 NO - not an interdunal wetland for rating</p> <p><i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> • Long Beach Peninsula- lands west of SR 103 • Grayland-Westport- lands west of SR 105 • Ocean Shores-Copalis- lands west of SR 115 and SR 109 <p>SC 6.1 Is the wetland one acre 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: center;">YES = Category I NO – go to SC 6.2</p> <p>SC 6.2 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger?</p> <p style="text-align: center;">YES = Category II NO – go to SC 6.3</p> <p>SC 6.3 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?</p> <p style="text-align: center;">YES = Category III NO – Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered NO for all types enter "Not Applicable" on Summary Form</p>	<p>NA</p>

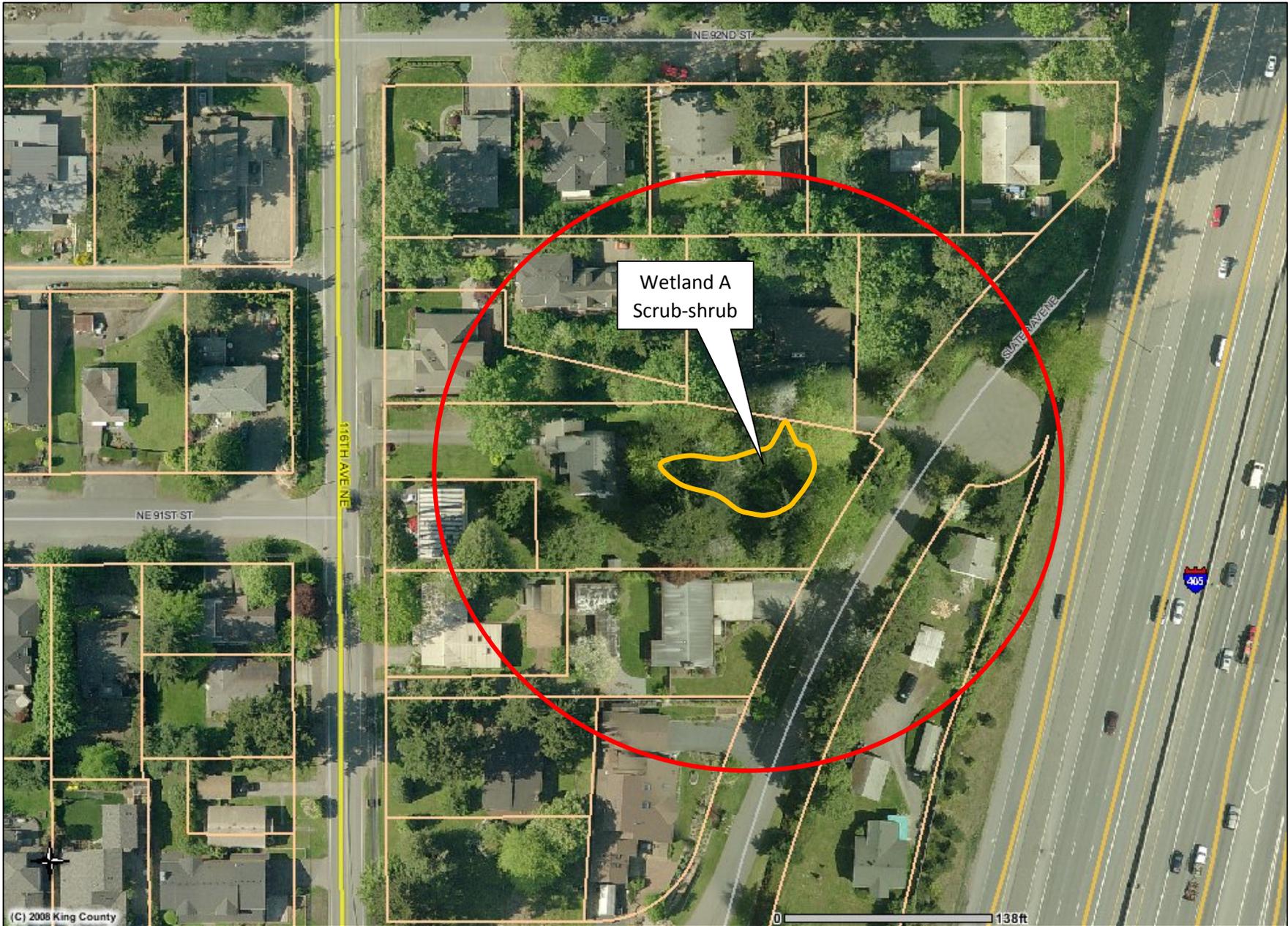


Figure 1: 150-foot Radius

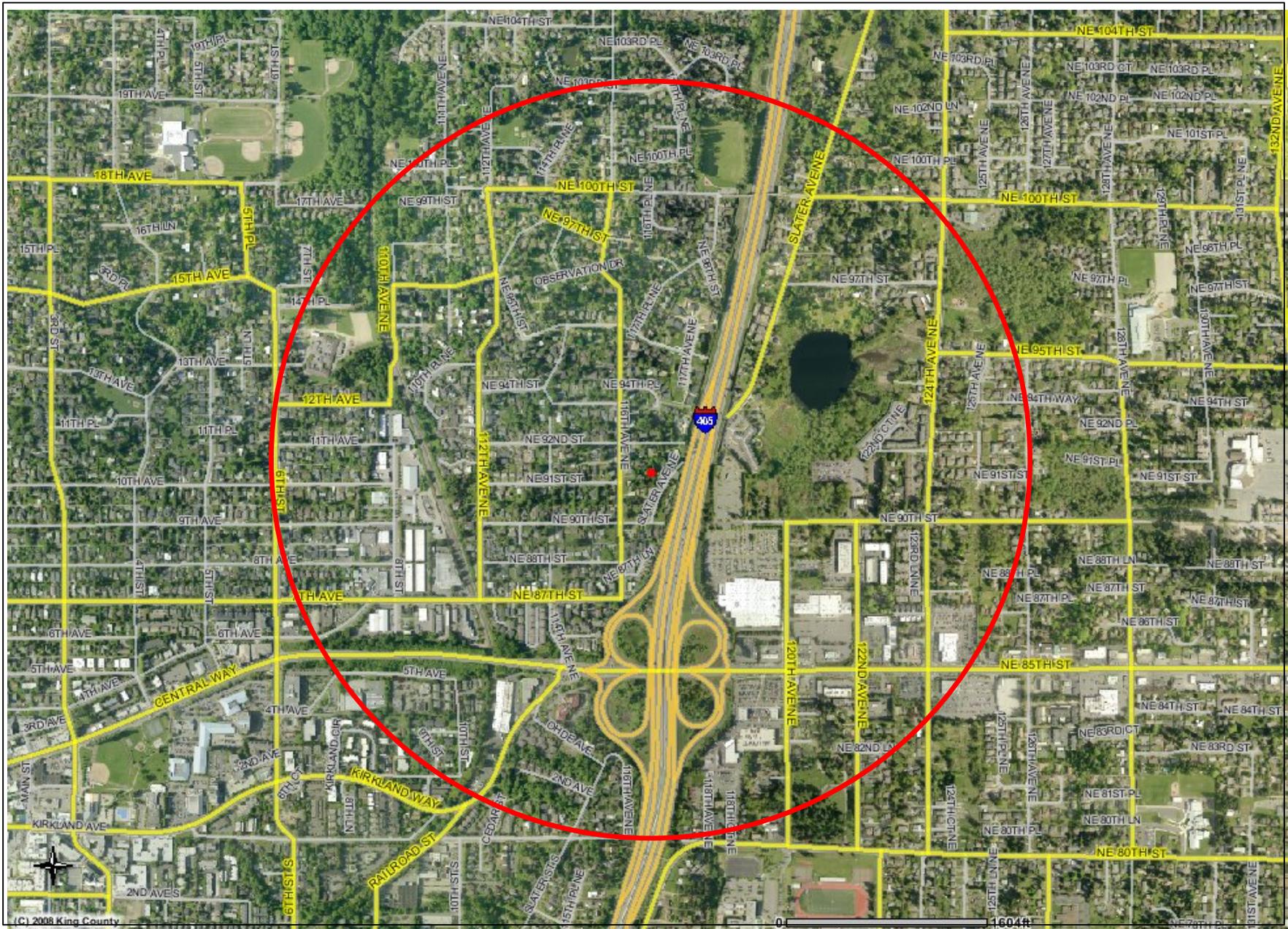


Figure 2: 1km Radius



Figure 3: Hydroperiods

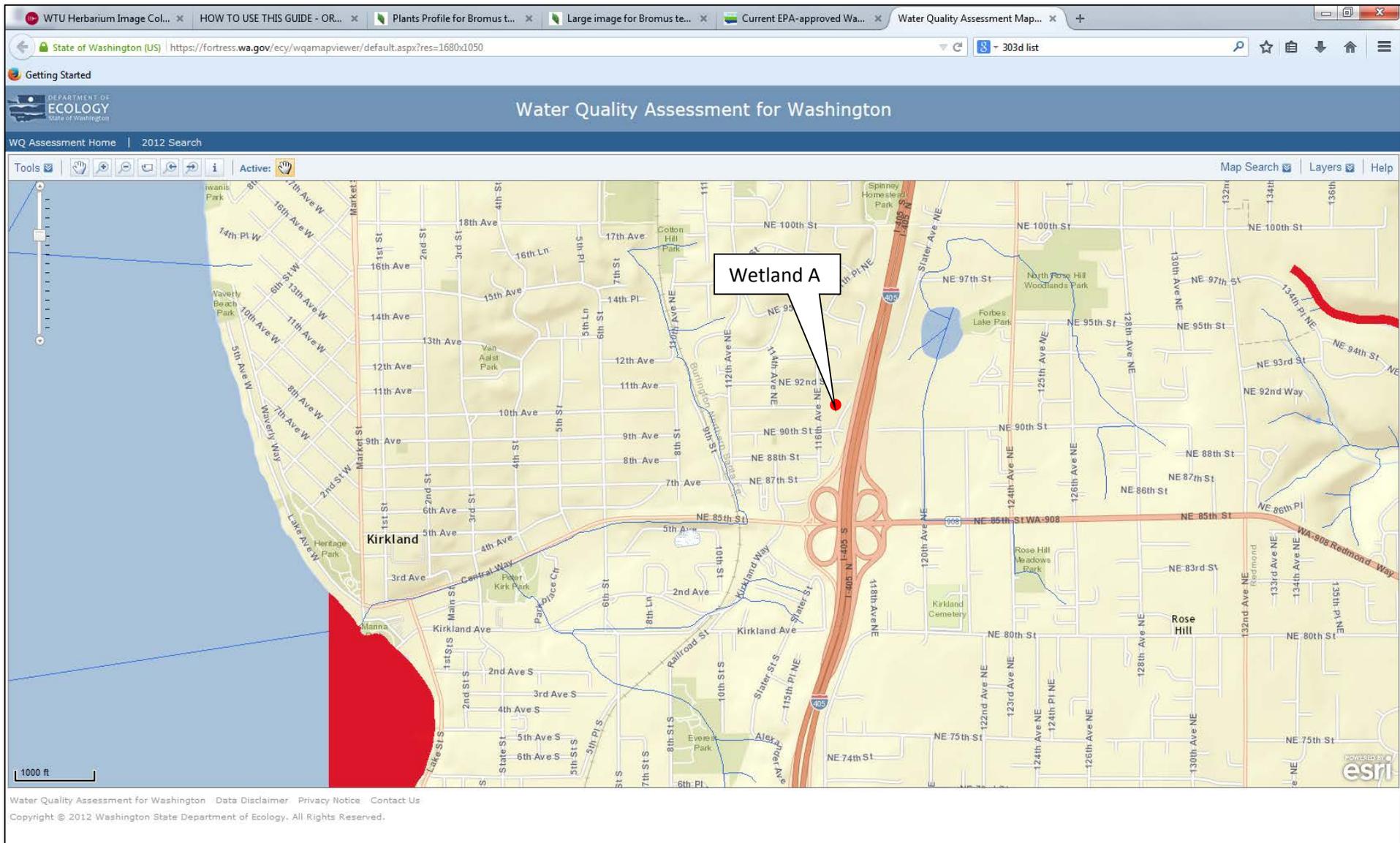


Figure 4: 303d Basin Map



Water Quality Improvement Projects (TMDLs)

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](#) > [Water Quality Improvement Projects by WRIA](#) > WRIA 8: Cedar-Sammamish

WRIA 8: Cedar-Sammamish

The following table lists overview information for 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	Pollutants	Status**	TMDL Lead
Ballinger Lake	Total Phosphorus	Approved by EPA	Tricia Shoblom 425-649-7288
Bear-Evans Creek Basin	Fecal Coliform	Approved by EPA	Joan Nolan 425-649-4425
	Dissolved Oxygen Temperature	Approved by EPA	
Cottage Lake	Total Phosphorus	Approved by EPA Has an implementation plan	Tricia Shoblom 425-649-7288
Issaquah Creek Basin	Fecal Coliform	Approved by EPA	Joan Nolan 425-649-4425
Little Bear Creek Tributaries: Trout Stream Great Dane Creek Cutthroat Creek	Fecal Coliform	Approved by EPA	Ralph Svrcek 425-649-7036
North Creek	Fecal Coliform	Approved by EPA Has an implementation plan	Ralph Svrcek 425-649-7036
Pipers Creek	Fecal Coliform	Approved by EPA	Joan Nolan 425-649-4425
Swamp Creek	Fecal Coliform	Approved by EPA Has an implementation plan	Ralph Svrcek 425-649-7036

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

For more information about WRIA 8:

- [Waterbodies in WRIA 8](#) - using the Water Quality Assessment Query Tool
- [Watershed Information for WRIA 8](#)

Figure 5: TMDL List for WRIA 8