


J. S. Jones and Associates, Inc.

WETLAND/STREAM ASSESSMENT

of the

**Gerald Lohnes Property
Parcel J**

**10239 Slater Ave. NE
Kirkland, Washington 98033**

**Tax Parcel Number: 663990-0055
Southwest Quarter Section 33, Township 26 North, Range 5 East**

Prepared for:

**Gerald W. Lohnes
10239 Slater Ave. N.E.
Kirkland, Washington 98033
425-889-8440**

Dated:

August 20, 2012

Prepared by:

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Routine Field Data Forms
City of Kirkland, Wetland Field Data (Rating) Form
Wetland Map

1.0 Project Description

The owner requests critical area approval, wetland and stream and their buffers, so the future development area of the Parcel J can be determined. This study was conducted to determine the type and extent of wetlands & streams on or near the subject property

2.0 Site Address, Identification, and Directions

The property is located at 10239 Slater Avenue. N.E., Kirkland, Washington 98033 (see Figure 1). The tax parcel number is 663990-0055. The property is located in Southwest quarter of Section 33, Township 26 North, Range 5 East, of the Willamette Meridian.

The legal description is as follows:

PARISHS GARDEN TRS UNREC LOT J KIRKLAND LLA #LLA-06-00006 REC
#20070215900001 SD LLA BEING POR NW 1/4 OF SE 1/4 OF SW 1/4 STR 33-26-5 LY
WLY OF SLATER AVE NE

Directions to the site from Renton are as follows: start toward Valley Freeway/WA-167 South; merge onto I-405 North toward Bellevue/Everett; take the WA-908 East exit, Exit 18 toward Redmond; turn slight right onto Northeast 85th Street/WA-908; turn left onto 124th Avenue Northeast; turn left onto Northeast 100th Street; turn right onto Slater Avenue Northeast; end at 10239 Slater Avenue Northeast.

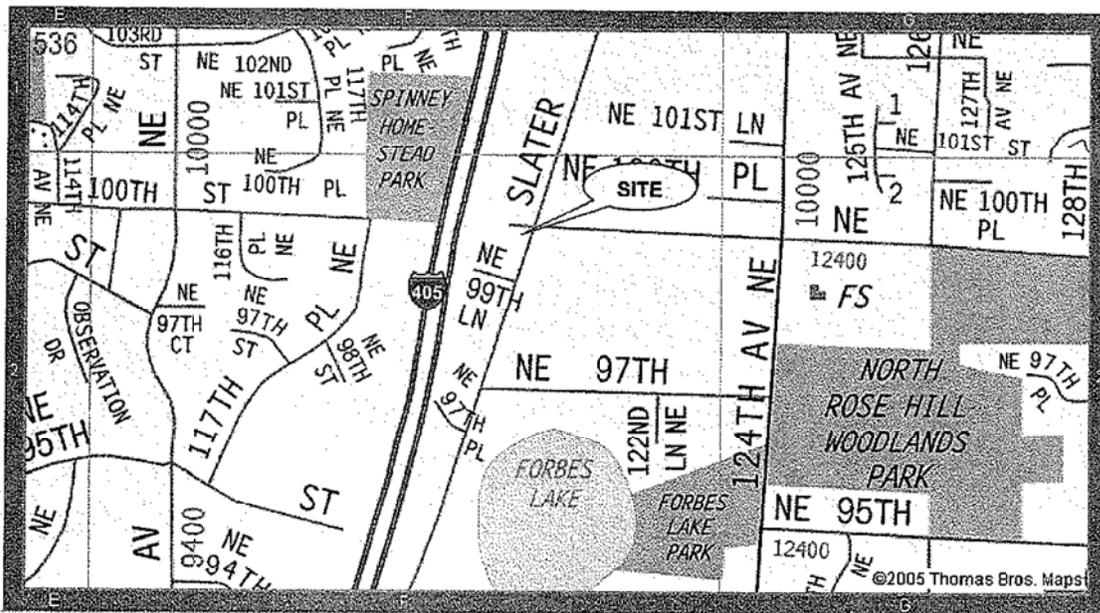


Figure 1.0 Vicinity Map

3.0 General Site Description

The site is 91,119 square feet or 2.09 acres. The parcel is between the existing gravel driveway, Slater Road, north property line and Forbes Creek. The property is bordered by I-405 to the west and by Slater Avenue to the east, and single-family homes to the north and south. An unclassified creek is just off-site of the north side of the property. The site is horse pasture and forest. The forest plant community is dominated with red alder, Douglas fir, western red cedar, western hemlock, cascara, birch with and under story of Himalayan blackberry, salmonberry, lady fern, creeping nightshade, vine maple, sword fern, stinging nettle, Canada thistle, mustard, and docks. The pasture is grazed unidentified grasses.

4.0 Methodology

4.1 Technical Methodology

The wetland assessment and delineation was performed by Jeffery S. Jones and Robert King, using the Routine Determination methodology as described in Part IV, Section D of the Corps of Engineers Wetlands Delineation Manual (COE, 1987), the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (COE, 2008), and the Washington State Wetlands Identification and Delineation Manual (DOE, 1997). The wetland delineation report was prepared to meet the requirements of the City of Kirkland's Zoning Code, Chapter 90.35 -90.70.

The Routine Determination method was used. The Routine Determination methodology is "used when the project area is small, plant communities are homogeneous, plant community boundaries are abrupt, and the project is not controversial." The Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region data forms were used for this wetland determination (COE, 2008). "The regional supplement is designed for use with the current version of the Corps Manual and all subsequent versions." Where differences in the two documents occur, and there are significant differences, the Regional Supplement takes precedence over the Corps Manual (COE, 2008). Under the 1987 DOE methodology, the hydrology criteria required saturation to the soil surface. The 2006 DOE/COE methodology requires saturation at 12 inches below the soil surface.

4.2 Vegetation Methodology

Hydrophytic vegetation has adaptations that allow these species to survive in saturated or inundated environments. These environments are classified according to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, 1979). The probability of species being found in wetland environments has been determined by the U.S. Fish and Wildlife Service in the *National List of Vascular Species that Occur in Wetlands: 1996 National Summary* (USFWS, 1996). An indicator status was applied to each species according to its probability of occurring in wetlands (see Table 1).

Table 1.0 Plant Indicator Status

Indicator Category	Symbol	Occurrence in Wetlands
Obligate Wetland	OBL	> 99%
Facultative Wetland	FACW	67-99%
Facultative	FAC	34-67%
Facultative Upland	FACU	1-33%
Upland	UPL	< 1%

Vegetation data was recorded at three sample locations. At each sample location, the dominant species were assessed by indicator status to determine if the plant community was predominantly hydrophytic. Rules for determining dominant species are from the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (COE, 2008). Dominants were determined using the 50/20 rule. Using this rule, percent cover for each stratum was added by order of descending cover until 50% cover was reached. These species were considered dominants. The next most common species was also included as a dominant if it had over 20% cover.

4.3 Hydrology Methodology

The Corps of Engineers Wetlands Delineation Manual (COE, 1987) and the Washington State Wetlands Identification and Delineation Manual (DOE, 1997) require inundation, flooding, or saturation to the surface for at least 5% of the growing season to satisfy the hydrology requirements for jurisdictional wetlands. Areas that are saturated between 5% and 12.5% of the growing season may or may not be wetlands. The growing season can either be defined by the number of frost-free days (temperatures above 28oF), or the period during which the soil temperature at a depth of 19.7 inches is above biological zero (41oF).

The presence of primary and secondary wetland hydrologic indicators were determined at each sample location by evaluating a variety of direct and indirect indicators. In addition to direct visual observation of inundation or saturation, secondary hydrologic indicators were used to infer wetland hydrology. Secondary indicators include oxidized channels (rhizospheres) associated with living roots and rhizomes, water marks on vegetation or fixed objects, drift lines, water-borne sediment deposits, water stained leaves, surface scoured areas, wetland drainage patterns, morphological plant adaptations, and hydric soil characteristics.

4.4 Soils Methodology

The procedures for soil sampling are provided in the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (COE, 2008). The USDA NRCS, formerly SCS, did not map soils in this area of Seattle. There are no wetlands identified on the King County GIS or the DNR mapping.

Hydric soils are soils that are “saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (COE, 1987)”. They are either organic soils (peats and mucks), or are mineral soils that are saturated long enough to produce soil properties associated with a reducing environment. These soils have hydric characteristics such as a reduced matrix (a matrix that changes color when exposed to air), redox depletions (gleying), or redox concentrations (mottles).

5.0 Vegetation Results

At sample location 1 (SL-1), the plant community is dominated by salmonberry (*Rubus spectabilis*, FAC+), creeping buttercup, *Ranunculus repens*, FACW), stinging nettles (*Urtica dioica*, FAC), reed canarygrass, (*Phalaris arundinacea*, FACW), and Himalayan blackberry (*Rubus armeniacus*, FACU). The plant community is hydrophytic because 80% of the dominant species are OBL, FACW or FAC and the prevalence index is less than 3.0.

At SL-2, the plant community is dominated by red alder (*Alnus rubra*, FAC), Douglas fir (*Pseudotsuga menziesii*, FACU), western red cedar (*Thuja plicata*, FAC), western hemlock (*Tsuga heterophylla*, FACU-), and unidentified grass species. Grasses species were assumed to be FAC. The plant community is hydrophytic because 80% of the dominant species are OBL, FACW or FAC and the prevalence index is less than 3.0.

At SL-3, the plant community is dominated by unidentified grass species in the horse pasture. Grass species were assumed to be FAC. The plant community is hydrophytic because unidentified grass species were not used to rule the area non-hydrophytic for vegetation. Most grasses species used in Western Washington pasture seed mixes are tolerant of wet conditions.

6.0 Soils Results

USDA Soil Conservation Service (SCS) mapped the site as Alderwood gravelly sandy loam (AgC)(USDA, 1973). Alderwood gravelly sandy loam, with 6 to 15 percent slopes. The Alderwood series is moderately well drained that have a weakly consolidated to strongly consolidated substratum at a depth of 24 to 40 inches. These soils are on uplands that forms conifers in glacial deposits. Field investigation concurs with SCS soils mapping (Snyder, et., al., 1973). Alderwood soils have inclusions of hydric soils in depressions and drainage patterns.

The soil at SL-1 is a hydric silt loam. From 0 to 6 inches, the soil is a very dark brown (10YR 2/2) silt loam. From 6 to 18+ inches, the soil is a gray (10YR 5/1) loam. The soil is hydric because it has a depleted one-chroma matrix below a dark surface.

The soil at SL-2 is a non-hydric gravelly sandy loam. From 0 to 4 inches, the soil is a dark brown (10YR 3/3) gravelly sandy loam. From 4 to 18 inches, the soil is a dark grayish brown (10YR 4/2) gravelly sandy loam with oxidized root channels. Soils were graded to convert the area to pasture. Livestock has further compacted soils.

The soil at SL-3 is a non-hydric gravelly sandy loam. From 0 to 18 inches, the soil is dark brown (10YR 3/3) gravelly sandy loam. The "A" horizon is absent. Soils were graded to convert the area to pasture. Livestock has further compacted soils.

7.0 Hydrology Results

SL-1 does has wetland hydrology. A water table is present at 12 inches. The soils profile is saturated to the soil surface.

SL-2 does not have wetland hydrology. The soil profile is dry. Soils are compacted and sloping, so precipitation sheet flows to the stream.

SL-3 does not have wetland hydrology. The soil profile is dry. Soils are compacted and sloping, so precipitation sheet flows to the stream.

8.0 Wetland Determination, Rating and Buffers

A wetland was delineated along a portion of Forbes Creek and the tributary to Forbes Creek (see Wetland Map). The main sources of wetland hydrology are sheet flow from precipitation and stream hydrology. The hydric soil series is a Norma silt loam, which has a one-chroma matrix. A shallow perched water table was present in August. The plant community is dominated by FACW and FAC plant species.

Based on the City of Kirkland Wetland Data Form (Plate 26 of Chapter 180 KCZ), the wetland is a Type 2 wetland characterized as providing significant habitat function and value with a total score of 32 points. According to Chapter 90.45 of the KZC Type 2 wetlands in the primary basin shall be required to have a 75-foot buffer from the wetland edge. Forbes Creek is a Class A stream in a primary basin. According to Chapter 90.90 of the KZC, the stream buffer requirement is 75 feet. The attached wetland map shows the largest extent of the wetland and stream buffers.

9.0 Wetland and Stream Functional Assessment

The wetland functions as flood area, sediment removal, and shoreline stabilization. It also provides natural biological support and habitat functions for wildlife.

Forbes Creek provides habitat suitable for fish, invertebrates and amphibians. Coho are present in Forbes Creek.

10.0 Impact Assessment

No impacts to sensitive areas are proposed. The applicant plans to sell the property.

11.0 Authority

This wetland determination is in accordance with Section 404 of the Clean Water Act, the objective of which is to "maintain and restore the chemical, physical, and biological integrity of the waters of the United States (COE, 1987)." Wetlands are "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (EPA, 1980) and (CE, 1982)."

12.0 Limitations

Wetland determinations and delineations are not final until approved by regulatory agencies and/or local jurisdictions. *J. S. Jones and Associates, Inc.* does not guarantee acceptance or approval by regulatory agencies, or that any intended use will be achieved.

13.0 References

CE, 1982. CFR, 328.3, Title 33: Navigation and Navigable Waters; Chapter II, Regulatory Programs of the Corps of Engineers. Vol. 47, No. 138, p 31810. US Government Printing Office, Washington D.C.

COE, 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, Miss.

COE, 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coastal Regions.

Cowardin, Lewis M. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service. Jamestown, North Dakota.

DOE, 1979. Washington State Wetlands Identification and Delineation Manual. Publication No. 96-94. Washington State Department of Ecology. Olympia, WA.

EPA, 1980. 40 CFR Part 230: Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material. Vol. 45, No. 249, 85352-85353. US Government Printing Office, Washington D.C.

USDA, 1973. Soil Survey of King County Area Washington. Nov. 1973.

USFWS. 1996. National List of Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Service. St. Petersburg, FL.

Gerald Lohnes

Attachments

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

Project/Site: Lohnes City/County: Kirkland Sampling Date: 8/17/2012
 Applicant/Owner: Gerald Lohnes State: WA Sampling Point: SL-1
 Investigator(s): R. King / J. Jones Section, Township, Range: SW 33 T26N R05E
 Landform (hillslope, terrace, etc.): stream embankment Local relief (concave, convex, none): concave Slope (%): 5-10
 Subregion (LRR): _____ Lat: 47.69194 Long: -122.17982 Datum: U.S. State Plane
 Soil Map Unit Name: Norma NWI classification: PSS
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

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

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

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u>	(A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>5</u>	(B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u>	(A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:	
= Total Cover				Total % Cover of:	Multiply by:
Sapling/Shrub Stratum (Plot size: <u>3M</u>)				OBL species <u>0</u> x 1 = <u>0</u>	
1. <u>rubus spectabilis</u>	<u>20</u>	<u>4</u>	<u>FAC</u>	FACW species <u>2</u> x 2 = <u>4</u>	
2. _____	_____	_____	_____	FAC species <u>2</u> x 3 = <u>6</u>	
3. _____	_____	_____	_____	FACU species <u>1</u> x 4 = <u>4</u>	
4. _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
5. _____	_____	_____	_____	Column Totals: <u>5</u> (A) <u>14</u> (B)	
= Total Cover				Prevalence Index = B/A = <u>2.8</u>	
Herb Stratum (Plot size: <u>3M</u>)				Hydrophytic Vegetation Indicators:	
1. <u>ranunculus repens</u>	<u>80</u>	<u>4</u>	<u>FACW</u>	1 - Rapid Test for Hydrophytic Vegetation	
2. <u>Urtica dioica</u>	<u>5</u>	<u>4</u>	<u>FAC</u>	2 - Dominance Test is >50%	
3. <u>phalaris arundinacea</u>	<u>5</u>	<u>4</u>	<u>FACW</u>	3 - Prevalence Index is ≤3.0 ¹	
4. _____	_____	_____	_____	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
5. _____	_____	_____	_____	5 - Wetland Non-Vascular Plants ¹	
6. _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain)	
7. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
= Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	
Woody Vine Stratum (Plot size: _____)					
1. <u>rubus arvensis</u>	<u>5</u>	<u>4</u>	<u>FACU</u>		
2. _____	_____	_____	_____		
= Total Cover					
% Bare Ground in Herb Stratum <u>0</u>					
= Total Cover					
Remarks:					

SOIL SL-1 is 12' w. between A2 & A3 Sampling Point: SL-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		
0-6	10YR 2/2						silt loam	
6-18"	10YR 2/1						loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators 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 checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

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

Project/Site: Lohner City/County: Kirkland, King Sampling Date: 8/17/2012
 Applicant/Owner: Gerald Lohner State: WA Sampling Point: SL-2
 Investigator(s): R. King, J. Jones Section, Township, Range: SW 33 T26N R09E
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): CONCAVE Slope (%): 5-10
 Subregion (LRR): _____ Lat: 47.69194 Long: -122.17982 Datum: US State Plane
 Soil Map Unit Name: Alderwood NWI classification: NIA

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

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>alnus rubra</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. <u>pseudotsuga menziesii</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. <u>Thuja plicata</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60</u> (AB)
4. <u>tsuga heterophylla</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	
	<u>60</u> = Total Cover			
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>0</u> x 1 = <u>0</u>
3. _____				FACW species <u>0</u> x 2 = <u>0</u>
4. _____				FAC species <u>3</u> x 3 = <u>6</u>
5. _____				FACU species <u>2</u> x 4 = <u>8</u>
	<u>0</u> = Total Cover			UPL species _____ x 5 = _____
Herb Stratum (Plot size: _____)				Column Totals: <u>5</u> (A) <u>14</u> (B)
1. <u>gramineae spp.</u>	<u>85</u>	<u>Y</u>	<u>FAC</u>	Prevalence Index = B/A = <u>2.8</u>
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	<u>85</u> = Total Cover			
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. _____				___ 1 - Rapid Test for Hydrophytic Vegetation
2. _____				___ 2 - Dominance Test is >50%
				<input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
				___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
				___ 5 - Wetland Non-Vascular Plants ¹
				___ Problematic Hydrophytic Vegetation ¹ (Explain)
				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
% Bare Ground in Herb Stratum <u>0</u>	<u>145</u> = Total Cover			Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
Remarks:				

SOIL SL-2 is 50' E. between A2 & A3

Sampling Point: SL-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		
0-4	10YR 3/3						gsd	
4-18"	10YR 4/2						gsd	ox. rhizosphere

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

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

<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Depleted Dark Surface (F7)	
	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks: "A" horizon has been historically graded. Compaction on surface from grazing.

HYDROLOGY

Wetland Hydrology Indicators:

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No

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

Remarks:

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

Project/Site: Lohner City/County: Kirkland, King Sampling Date: 8/17/2012
 Applicant/Owner: Gerald Lohner State: WA Sampling Point: SL-8
 Investigator(s): R. King / J. Jones Section, Township, Range: SW 33 T26N R09E
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5-10
 Subregion (LRR): _____ Lat: 47.69194 Long: -122.17982 Datum: US State Plane
 Soil Map Unit Name: Alderwood NWI classification: NIA
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? no Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? no (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

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

SOIL SL-3 is 20' W of Utility Pole on Slater Ave NE Sampling Point: SL-3

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		
0-18"	10YR3/3						SCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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)	Indicators for Problematic Hydric Soils³:
<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)	

³Indicators 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: "A" horizon has been historically graded. Compaction is present on surface from grazing.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Field Observations:

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

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

Remarks:

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	Points
	>20.00	= 6	
	10-19.99	= 5	
	5-9.99	= 4	
	1-4.99	= 3	
	0.1-0.99	= 2	
	<0.1	= <u>1</u>	

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	<u>4</u>	= <u>7</u>
Forested: if the area of forested class is >1/2 acre or >10% of the total wetland area	<u>5</u>	= <u>10</u>

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			<u>>4</u> = 3	
Emergent	1-2 = 1		Forested	1-2 = 1	
	3-4 = 2			<u>3-4</u> = 2	

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>4 = 3

>4 = 3

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

5. Interspection 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

6. Habitat features

Add points associated with each habitat feature listed:

- Is there evidence of current use by beavers? = 3
- Is there evidence of current use by beavers? = 2
- Is a heron rookery located within 300'? = 1
- 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

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Are there at least 3 downed logs per acre?

= 1

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

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	30% X 0 =		= 0	
Lawn, grazed pasture, vineyards or annual crops	50% X 1 =		= 50	
Ungrazed grassland or orchards	% X 2 =		=	
Open water or native grasslands	% X 3 =		=	
Forest or shrub	20% X 4 =		= 80	
			Add buffer total	130

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

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?

= 1

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

= 0

10. Scoring

Add the scores to get a total: 40

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

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Answer:
Yes = Type 2
No = Type 3

