WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

This form must be included with any wetland delineation report submitted to the Department of State Lands for review and approval. A wetland delineation report submittal is not "complete" unless the fully completed and signed report cover form and the required fee are submitted. Attach this form to the front of an unbound report or include a hard copy of the completed form with a CD/DVD that includes a single PDF file of the report cover form and report (minimum 300 dpi resolution) and submit to: **Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279.** A single PDF attachment of the completed cover from and report may be e-mailed to **Wetland_Delineation@dsl.state.or.us**. For submittal of PDF files larger than 10 MB, e-mail instructions on how to access the file from your ftp or other file sharing website. Fees can be paid by check or credit card. Make the check payable to the Oregon Department of State Lands. To pay the fee by credit card, call 503-986-5200.

☒ Applicant ☒ Owner Name, Firm and Address: Ryan Stee, Parks Planning & Natural Resource Manager City of Lake Oswego PO Box 369, Lake Oswego, OR 97034	Business phone # (503) 697.6575 Mobile phone # (optional) E-mail: rstee@ci.oswego.or.us
☐ Authorized Legal Agent, Name and Address:	Business phone # 503 697 6575 Mobile phone # E-mail: rstee@ci.oswego.or.us

I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.

Typed/Printed Name: Ryan Stee Signature: [signature]

Date: Special instructions regarding site access:

Project and Site Information (using decimal degree format for lat/long.,enter centroid of site or start & end points of linear project)

Project Name: Iron Mountain Park Restoration Project	Latitude: 45.414048 W Longitude: -122.701704 N
Proposed Use: Stream and wetland restoration (design in very early planning phase – no permit application submitted to date)	Tax Maps # 21E09BC00100, 21E09BB02900, 21E09BB03000, 21E09BB03100, 21E0900601
Project Street Address (or other descriptive location): N side of Iron Mt. Blvd., east of Hunt Club	Township 2S Range 1E Section 8, 9 QQ - Tax Lot(s) 100, 2900, 3000, 3100, 601
City: Lake Oswego County: Clackamas	Waterway: unnamed tributary River Mile: -- NWI Quad(s): Lake Oswego

Wetland Delineation Information

Wetland Consultant Name, Firm and Address: Sarah Hartung, ESA 819 SE Morrison Street, Ste. 310 Portland, OR 97214	Phone # 971-295-5004 Mobile phone # 503-407-6083 E-mail: shartung@esassoc.com

The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.

Consultant Signature: Sarah Hartung Date: 9-9-2015

Primary Contact for report review and site access is ☒ Consultant ☐ Applicant/Owner ☐ Authorized Agent

Wetland/Waters Present? ☒ Yes ☐ No | Study Area size: 7.2 Total Wetland Acreage: 0.82

Check Box Below if Applicable:	**Fees:**
☐ R-F permit application submitted	☒ Fee payment submitted **$406**
☐ Mitigation bank site	☐ Fee ($100) for resubmittal of rejected report
☒ Wetland restoration/enhancement project (not mitigation)	☐ No fee for request for reissuance of an expired report
☐ Industrial Land Certification Program Site	
☐ Reissuance of a recently expired delineation Previous DSL # Expiration date _____	

Other Information:	Y	N	
Has previous delineation/application been made on parcel?	☒	☐	If known, previous DSL # 2003-123 (lot 100 only)
Does LWI, if any, show wetland or waters on parcel?	☒	☐	

For Office Use Only

DSL Reviewer: _____ Fee Paid Date: ____/____/____ DSL WD # _____

Date Delineation Received: ____/____/____ DSL Project # _____ DSL Site # _____

Scanned: ☐ Final Scan: ☐ DSL WN # _____ DSL App. # _____

IRON MOUNTAIN PARK

Wetland Delineation Report

Prepared for

September 2015

City of Lake Oswego
Parks Planning & Natural Resources
P.O. Box 369
Lake Oswego, OR 97034

ESA VIGIL-AGRIMIS

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A. LANDSCAPE SETTING AND LAND USE

ESA Vigil-Agrimis (ESA VA) was contracted by the City of Lake Oswego to delineate wetlands and streams in support of planning for future aquatic habitat restoration. Restoration is in the early phases of planning and at the time of this report, no design concepts or alternatives have been developed. Restoration may include culvert upgrades and streambank re-contouring. The site is located in Iron Mountain Park, Lake Oswego in Clackamas County (Figure 1, Appendix A). The study area investigated covers 7.2 acres at the base of Iron Mountain in Sections 8 and 9 in Township 2 South, Range 1 East Willamette Meridian. Portions of tax lots 21E09BC00100, 21E09BB02900**,** 21E09BB3000, 21E09BB03100, 21E0900601 are included in the study area.

The terrain of the study area is relatively flat with elevations ranging from 122 to 132 feet above mean sea level. In contrast, the elevation of Iron Mountain ranges from 300 to 450 feet above mean sea level. The Lake Oswego Hunt Club borders the study area to the west and Iron Mountain Boulevard borders the study area to the south and the east. Steep forested slopes of Iron Mountain Park border the study area to the north. The Union Pacific Railroad (formerly Burlington Northern) is parallel to and south of Iron Mountain Boulevard.

Iron Mountain Park was donated to the City in 1963 and currently covers 49 acres of upland, riparian, and wetland habitat. A soft-surface, natural trail system weaves throughout the park. Since 1990, the City has used money from an open space bond fund along with other sources to acquire additional parcels for the park (USDOI 2013, Stee 2015 pers. comm.). The non-profit group, Friends of Iron Mountain (formerly Friends of Brookside) was started in the early 2000's and has since purchased land for Iron Mountain Park. Metro and other entities have also worked to acquire land adjacent to the park to increase open space.

Current land use in the study area includes open space and wildlife habitat. Construction staging for the Lake Oswego Sewer Interceptor Project is currently being provided in the northwest portion of the study area. Adjacent land uses include open space/passive recreation in Iron Mountain Park, an equestrian center with stables (the Lake Oswego Hunt Club), and single-family residences located west of the Hunt Club and north of the Iron Mountain ridgeline. Previous land uses in the study area include farming activity prior to the 1950s, and single-family residences from the 1940s-1950s to 2003-2010. Two of the three houses were removed from the study area between 2003 and 2004 and the remaining house was removed in 2010. Mining operations took place on the ridge from 1867 to 1894 (Trimble 1963).

Maps and figures required by the Oregon Department of State Lands (DSL) are located in Appendix A. Wetland determination data forms are located in Appendix B. Ground-level color photographs of the wetlands were taken to characterize typical conditions and are located in Appendix C. Photo points are shown on Figures 5.1 and 5.2, Appendix A. All photos were taken during field investigations. Additional information, including historic photos, is located in Appendix D.

B. SITE ALTERATIONS

Site alterations that are expected to have affected the presence, location, or geographic boundaries of waters of the state on-site include residential development, disposal of debris, and possible farming activities.

A U.S. Geologic Survey (USGS) topographic map from 1914 depicts the study area and adjacent land as a broad wetland complex connected to Springbrook Creek, a tributary of Lake Oswego (Exhibit D-1, Appendix D). The railroad corridor had been constructed by 1914 and likely influenced the hydrology of the area, possibly by blocking or slowing water flow down the slope towards Lake Oswego. Residences were developed along Springbrook Creek by 1941 (Exhibit D-2, Appendix D) and the area north of the stream was farmed prior to the development of the Hunt Club (Amsberry, pers comm, 2015). By 1954, three residences had been constructed in the study area (Exhibit D-3). Sometime between 1914 and 1954, wetlands were filled and surface water was confined to a single narrow channel that flows west towards the Hunt Club. It appears that the channel was constructed as a drainage feature, likely at the time of the construction of Iron Mountain Road and associated home sites. Three access roads were constructed across the channel and one of the houses was built over a buried section of the small stream.

Flooding of the Willamette River and its associated tributaries that occurred in 1996 resulted in substantial commercial, industrial, and residential damage. Debris associated with the flood was dumped throughout the study site, the majority of the debris on the west end next to the Hunt Club property pond. Dumping of road and construction debris also likely occurred prior to city ownership when the study area was part of Clackamas County (Amsberry, pers comm, 2015). Disposal of debris is not expected to have substantially altered the boundaries of wetlands / waterways, but may have somewhat reduced the size of the Hunt Club pond and resulted in steeper banks along the unnamed stream.

C. PRECIPITATION DATA AND ANALYSIS

Precipitation data for the period immediately preceding field delineations for the project are from the PCC Sylvania station (City of Portland, 2015) located approximately three miles southeast of the study area. These data were compared to historical climate data from the Natural Resources Conservation Science WETS Portland KGW TV (OR 6749) to determine if precipitation was within the normal range. Precipitation for the day of the field visit when wetlands were delineated and the preceding two weeks are presented in Table 1.

Table 1. Precipitation Data for Field Days and the Previous Two Weeks

Date (2015)	Precipitation (inches)
Previous 2 Weeks (June 22 to July 6)	0.00
July 7	0.00
Total	0.00

Source: PCC Sylvania station
Note: Field days are shown in **BOLD.**

A comparison of actual rainfall near the study area to the WETS average and normal ranges is presented in Table 2. Rainfall for April was *within* the normal range. Rainfall for May, June, and July was *below* normal range.

Table 2. Precipitation for the Months Preceding Fieldwork

		April	May	June	July*	Total
A.	Actual rainfall** (inches)	2.57	0.56	0.61	0.00	3.74
B.	WETS average rainfall *** (inches)	3.10	2.49	1.60	0.17	20.46
C.	Percent (%) of average rainfall (Line A/Line B)	83%	22%	38%	0%	18%
D.	WETS normal precipitation range *** (inches)	2.14 to 3.69	1.53 to 3.01	0.85 to 1.95	0.07 to 0.21	4.59 to 8.86

*Adjusted for a portion of July **PCC Sylvania station *** Portland KGW TV, OR 6749 WETS Station

D. METHODS

Two levels of investigation were conducted for the analysis of wetlands in the Iron Mountain study area: a review of existing information and formal on-site delineations.

a. Review of Existing Information

A review of existing literature, maps, and other materials was conducted to identify wetlands or site characteristics indicative of wetlands in the study area:

- Topographic Map 1:24,000, Oswego quadrangle (U.S. Geological Service, 1954); Topographic Map 1:62,500, Oregon City quadrangle (U.S. Geological Service, 1914, 1939, and 1941);
- Soil Survey of Clackamas County, Oregon (Gerig 1985);
- Hydric Soils List of Clackamas County Area, Oregon (Natural Resource Conservation Service, 2006);
- Draft Local Wetland Inventory of the City of Lake Oswego and Vicinity (Fishman Environmental Services, 1992);
- Wetlands Delineation for Springbrook Creek Restoration (Henderson Land Services, 2003);
- Precipitation data from PCC Sylvania Station (City of Portland, 2015);

- Precipitation data from Climate Analysis for Wetlands (WETS) Portland KGW TV Station, OR 6749 (Natural Resource Conservation Service, 2015);

- Aerial imagery (Google Earth, 1994-2015; USDA Farm Service Agency 2015).

One wetland (W-28 or the Hunt Club Pond) is shown on the Local Wetland Inventory (LWI) in the western portion of the study area (Figure 3). Refer to the section *Deviation from NWI or LWI* for more information on existing wetland mapping.

Table 3 presents the soil units mapped by the Natural Resources Conservation Service (NRCS) located within the study area.

Table 3: Mapped Soil Units within the Study Area

Soil map symbol	Map unit name	Hydric?
42	Humaquepts, ponded	Yes
92F	Xerochrepts and Haploxerolls, very steep	No
93E	Xerochrepts-Rock outcrop complex, moderately steep	No

Source: NRCS, 2006.

b. On-site Wetland Delineations

Formal delineations were conducted by ESA VA staff on July 7th, 2015, following routine methods defined in the U.S. Army Corps of Engineers (Corps) *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region* (U.S. Army Corps of Engineers, 2010).

Site specific methods for delineating wetlands on-site involved 1) verifying the 2003 wetland delineation for the western portion of the study area and 2) walking the remaining study area and observing surface indicators of wetland conditions such as hydrophytic vegetation (sedges, rushes, willows etc.), low spots or swales, and establishing at least one set of paired plots (one wetland and one upland) for each wetland.

c. Waterway Determinations

One unnamed stream was present on the site, and its Ordinary High Water Line (OHWL) was determined in the field in accordance with current DSL stream delineation methodology. Field indicators of OHWL recognized by DSL include:

1) Clear, natural line impressed on the shore, including scour, shelving and exposed roots;
2) Change in plant community from riparian (e.g., willows) to upland (e.g., oak, fir) dominated. If the area is cropped, hydrophytic plants, or evidence of crop stress or damage from high flows would be indicative of high water;

3) Textural change of depositional sediment or changes in the character of the soil (e.g. from sand, sand and cobble, cobble and gravel to upland soils). Sediments may appear stratified. This indicator may require careful evaluation on floodplains where certain farming practices regularly disturb the soil profile;
4) Elevation below which no fine debris (needles, leaves, cones, seeds, soil organic matter) occurs; and
5) Presence of water-borne litter and debris, wrack accumulation, water-stained leaves, water lines on tree trunks, flattened vegetation. Certain farming practices can obscure these indicators.

Field indicators #1 and 2 above were used to determine the OHWL of Stream 1.

E. DESCRIPTION OF ALL WETLANDS AND OTHER NON-WETLAND WATERS

Two wetlands and one unnamed stream were delineated in the study area (Figures 5.1 and 5.2, Appendix A) and are described below.

a. Wetland A

Wetland A covers 0.17 acre in the eastern portion of the site between the base of Iron Mountain and Stream 1. The Cowardin classification for Wetland A is PEM/PSS (Palustrine Emergent/Palustrine Scrub-Shrub) and the hydro-geomorphic (HGM) class is Slope. A concrete house foundation protrudes into the wetland dividing it into an eastern and western portion. The wetland boundary along the east and west edges was determined by a distinct topographic break that marked a clear change to upland blackberry thickets. The north edge of the wetland was flagged at the transition to upland forest at the base of the steep hillside. The wetland is on a gentle south-facing slope, and the south edge of the wetland connects with Stream 1, except where the concrete foundation is located. Sample plots (SP) 1 and 3 characterize wetland conditions, with SP 2 and 4 as the corresponding upland plots.

The eastern portion of the wetland consists of an emergent plant community dominated by bulrush (*Scirpus microcarpus* - OBL) and field horsetail (*Equisetum arvense* - FAC). A large weeping willow tree is rooted on the boundary next to the concrete house foundation, and a few big leaf maples are rooted along the bank of Stream 1, but the predominant wetland plant community that interacts with hydrology is considered emergent. A narrow corridor adjacent to the old house foundation connects the eastern portion of the wetland with the western portion, which includes a mix of emergent and scrub-shrub vegetation. The emergent community in the West portion is the same as the eastern side of the wetland. Dominant shrubs were spiraea (*Spirea douglasii* - FACW) and red-osier dogwood (*Cornus alba* - FACW). Vegetation within the wetland met the Dominance Test and Rapid Test for Hydrophytic Vegetation indicators of hydrophytic vegetation.

Soils in the wetland met the Redox Dark Surface (F6) hydric soil indicator. Texture of the soil varied and included: clay, clay loam, chalky fill and debris, silt loam, and silty clay loam in the top 20 inches.

Primary wetland hydrology indicators observed include Surface Soil Cracks (B6) and Oxidized Rhizospheres along Living Roots (C3). The main source of wetland hydrology in Wetland A is groundwater/subsurface flow originating from Iron Mountain. With the exception of a low spot near SP-1, Wetland A is higher than or level with the elevation of the top of the right bank of Stream 1. Consequently, hydrology from Stream 1 is not anticipated to strongly influence the adjacent wetland. Some groundwater exchange between the stream and Wetland A may occur during the wet season, but in general surface and subsurface hydrology is expected to flow one direction from Iron Mountain to the south.

b. Wetland B

Wetland B, also known as the Hunt Club Pond, covers 0.65 acre in the western half of the study area and continues off-site into the Lake Oswego Hunt Club property. The Cowardin classification for Wetland B is PSS with a HGM class of depressional-outflow. The north, east, and southern boundaries were flagged along a distinct topographic break with upland wooded areas and blackberry thickets above the wetland elevation. Sample plots 5, 7, and 9 characterize wetland conditions, with SP 6, 8, and 10 as the corresponding upland plots.

Pacific willow (*Salix lasiandra* - FACW) dominates the scrub-shrub vegetation layer of the wetland with some Sitka willow saplings (*Salix sitchensis* - FACW), red-osier dogwood, and Himalayan (Armenian) blackberry (*Rubus armeniacus* - FACU) scattered throughout the wetland. Soft rush (*Juncus effusus* - FACW) and reed canarygrass (*Phalaris arundinacea* - FACW) were observed along the perimeter of the pond. Marsh pennywort (*Hydrocotyle umbellata* - OBL) forms a dense mat between the soft rush/reed Canary grass perimeter and open water habitat located off-site to the west. Duckweed (*Lemna* spp.) wwas prevalent in areas of standing and slowly flowing water. Vegetation within the wetland met the Dominance Test for Hydrophytic Vegetation indicator.

Primary wetland hydrology indicators for Wetland B include Surface Water (A1), High Water Table (A2), and Saturation (A3). Water sources are a combination of groundwater, inflow from Springbrook Creek, and inflow from Stream 1. Water depths in the deeper portions of Wetland B within the study area were estimated to range from 1 to 2 feet, with an unconsolidated muddy bottom also about 1 to 2 feet deep.

Soils in the wetland consisted of silt, sandy silt, silt loam, and silty clay from 0 to 20 inches and met the Redox Dark Surface (F6) soil indicator.

c. Stream 1

The primary stream feature within the study area is an unnamed tributary (Stream 1) to Springbrook Creek with a watershed area of approximately 0.6 acres. For the purpose of this report, the stream is described in different reaches separated by culverts. Stream 1 originates at the east end of the study area in a drainage ditch (Reach 1) along SW Iron Mountain Road. From this location, the Stream 1 flows generally southwestward through a series of impounded channels (Reaches 2-5) for approximately 740 feet before draining into the Lake Oswego Hunt Club Pond. Beyond the study area boundary, the unnamed stream ultimately exits the pond and continues southwestward to its confluence with Springbrook Creek.

Surface water from a depressional wetland/drainage area south of Iron Mountain Boulevard (located off-site) is piped into Reach 1 via twin 12-inch diameter PVC pipes. In 2014, these twin culverts were installed approximately 1 foot higher in elevation than the existing concrete pipe (Amsberry, pers. comm. 2015). The new culvert inlets on the south side of the road are approximately 0.5 feet higher in elevation then the outlets. The inlet of the old concrete pipe is visible, but the outlet on the north side of the road was likely buried beneath the rock apron installed for the new culverts. The new culverts are expected to decrease connectivity between drainage segments on either side of Iron Mountain Boulevard because surface water elevation will have to be 1 foot higher to flow into Reach 1.

Within the study area bank full width is approximately 5 feet wide, and 0.5 to 1 feet deep at typical water levels. The OHWL was flagged at a higher elevation than bank full width and ranges from 7 to 18 feet wide, with the widest section in Reach 5 adjacent to Wetland B (Hunt Club Pond). The stream channel throughout the study area is extremely flat, with a longitudinal slope of less than 1 percent.

Habitat conditions within the unnamed stream channel varied. During low water, some stream reaches exhibited wetland characteristics including exposed mud and emergent vegetation. The channel in Reach 1 was dry at the time of the site visit. Reach 2 and the upstream end of Reach 3 contained saturated mud, but no surface water. The downstream end of Reach 3 contained standing water approximately 0.5 to 1-foot deep, with approximately 1 foot of loose, mucky sediment deposited. Reach 4 was the only stream segment where water was observed flowing across a small rifle. Reach 5 contained standing water that was approximately 0.5 to 1 foot deep. Riparian vegetation in the upstream reaches are dominated by blackberry, while the lower reach closer to the Hunt Club pond has mostly native vegetation dominated by willow and red-osier dogwood.

Field indicators of OHWL were observed in the field in many locations along the unnamed stream, in accordance with DSL guidelines. Primary field indicators of OHWL observed at the project site included a clear, natural line impressed on the shore, including scour, shelving and exposed roots, and a change in plant community from riparian (e.g., willows) to upland (e.g., oak, fir) dominated. The riparian corridor contained predominantly black cottonwood (*Populus balsamifera* - FAC) and blackberry.

d. Uplands

Uplands adjacent to wetland resources consisted of moderate upper canopy cover (55-75 percent cover) of several dominants including Pacific willow, big leaf maple (Acer macrophyllum - FACU), red alder (Alnus rubra - FAC), Douglas fir (*Pseudotsuga menziesii* - FACU), crabapple (*Malus fusca* - FACW), and English hawthorn (*Crataegus monogyna* - FAC). The shrub and herb strata contained primarily dominant invasive or weedy species, including Himalayan blackberry, English ivy (*Hedera helix* - FACU), horsetail (*Equisetum arvense* - FAC), reed canary grass (*Phalaris arundinacea* - FACW), and herb Robert (*Geranium robertianum* - FACU). Surrounding upland forested areas included the additional species: beaked hazelnut (Corylus cornuta - FACU), walnut (*Juglans hindsii* - FAC), and vine maple (*Acer circinatum* - FAC). One sample plot contained hydrophytic vegetation, but all lacked hydric soils and wetland

hydrology indicators. Silt loam soils contained faint to nonexistent redoximorphic features. Upland areas contained no evidence of wetland hydrology indicators.

F. DEVIATION FROM LWI OR NWI

The Lake Oswego Natural Resource Inventory (LWI) shows a water resource identified as W-28 or the "Hunt Club Pond" in the location of Wetland B described in this report (Figure 3). W-28 is mapped as approximately 2 acres in size, with a habitat class of "pond". The Natural Resource Inventory notes that the pond is a significant source of water for wildlife inhabiting the adjacent uplands along the slopes of Iron Mountain. The pond provides year-round food and water for waterfowl, and it functions as a stormwater storage area and a sediment and nutrient trap (Fishman, 1992). A portion of Wetland B was previously delineated in 2003 (WD 2003-0123) and the current wetland boundaries appear to be similar.

Field delineations deviate somewhat from the LWI as neither Wetland A nor the unnamed stream is shown on the inventory.

G. MAPPING METHOD

Wetland boundaries, Stream 1 and sample plots were professionally land surveyed by Statewide Land Surveying, Inc. in August 2015. Accuracy of wetland and stream boundary locations is +/- 0.1 foot.

H. ADDITIONAL INFORMATION

Additional information presented includes historical topographic maps of the study area (Exhibits D-1 to D-3) located in Appendix D and a summary of fish and wildlife habitat observed on-site.

Stream 1 may have historically supported cutthroat trout, but is currently expected to support non-native mosquitofish and native stickleback (although no fish were observed during the field investigation). Stream 1 is too small to be included on DSL's Essential Salmon Habitat (ESH) mapping or in the StreamNet database. Springbrook Creek is also not mapped as ESH nor is it included in StreamNet. Up to 50 cubic yards (cy) of material may be placed/removed from non-ESH aquatic habitat without a permit from DSL, although the Corps typically has concurrent jurisdiction over wetlands/streams and does not have a minimum threshold of fill for permit applications.

Wildlife observed in the study area during the field visit includes non-native nutria and non-native bullfrogs in Wetland B (Hunt Club Pond). Reach 3 contained at least 20 rough-skinned newts (*Taricha granulosa*) that were observed in the mud and shallow water. The newt is one of the Northwest's most common pond-breeding amphibians. Several ponds in the region are known to contain hundreds of newts and no other amphibians (Corkran and Thoms, 1996), possibly because newts eat the eggs of other salamanders.

I. RESULTS AND CONCLUSIONS

Two wetlands (Wetlands A and B) and an unnamed tributary to Springbrook Creek (Stream 1) were delineated by ESA July 7, 2015 at the Iron Mountain Park study area (Figures 5.1 and 5.2, Appendix A). Refer to Table 4 for a summary of the aquatic resources found on-site.

Table 4: Summary of Wetlands and Waterways

Wetland/ Waterway	Approx. Size (ac)	Cowardin	HGM	Likely Jurisdiction*	
				DSL	Corps
Wetland A	0.17	PEM/PSS	Slope	Yes	Yes
Wetland B	0.65	PSS	Slope/ Depressional outflow	Yes	Yes
Stream 1	N/A	Riverine - intermittent	N/A	Yes	Yes

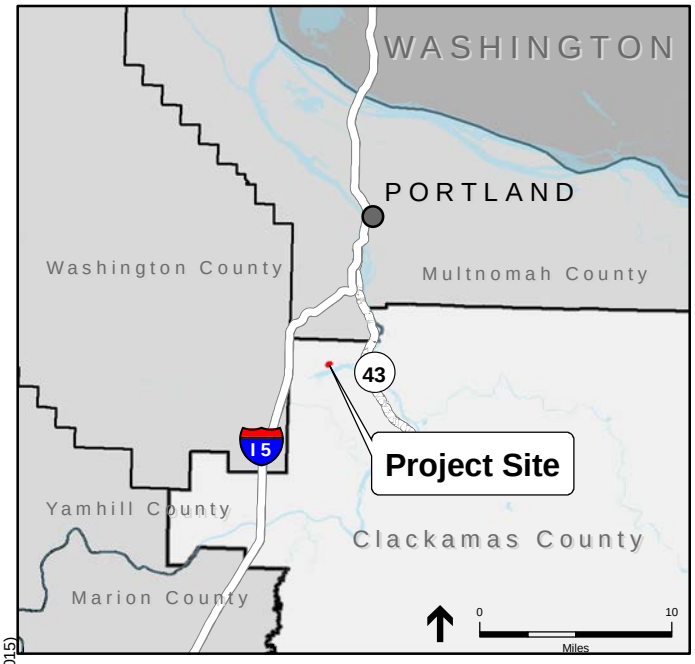
* This is a preliminary determination that will require concurrence from DSL and the Corps.

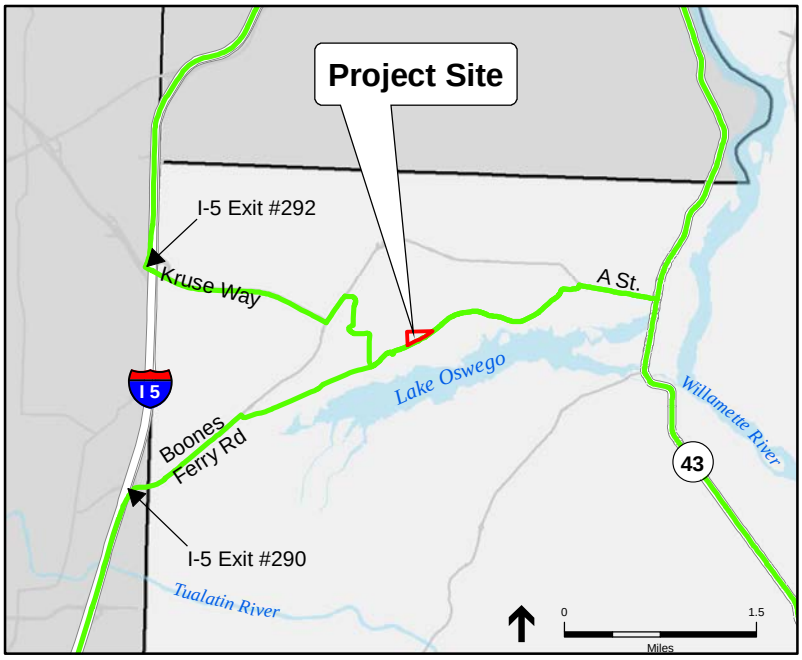
J. DISCLAIMER

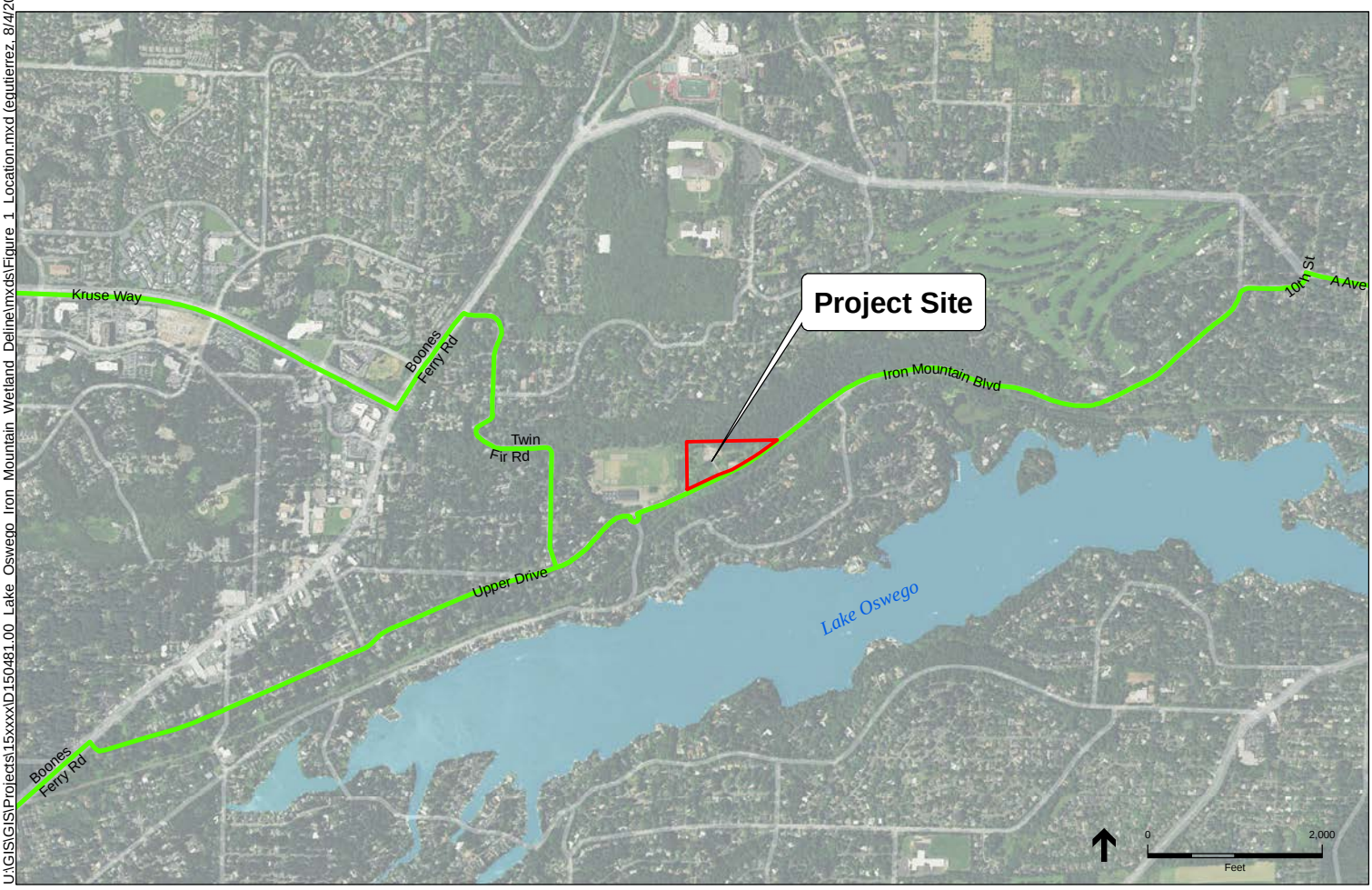
This report documents the investigation, best professional judgment, and conclusions of the investigator. It is correct and complete to the best of my knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon Department of State Lands in a good accordance with OAR 141-090-0005 through 141-090-0055.

APPENDIX A:
MAPS

Figure 1	Location Map
Figure 2	Taxlot and Aerial Map
Figure 3	Local Wetland Inventory Map
Figure 4	Soils Map
Figure 5.1	Wetland Delineation Index Map
Figure 5.2	Wetland Delineation Detail Map







U:\GIS\GIS\Projects\15xxxx\D150481.00 Lake Oswego Iron Mountain Wetland Deline\mxds\Figure 1 Location.mxd (equtierrez, 8/4/2015)

Legend

- Site Boundary
- Water
- Driving Route from North and South of Lake Oswego
- Interstate 5
- Oregon State Highway 43

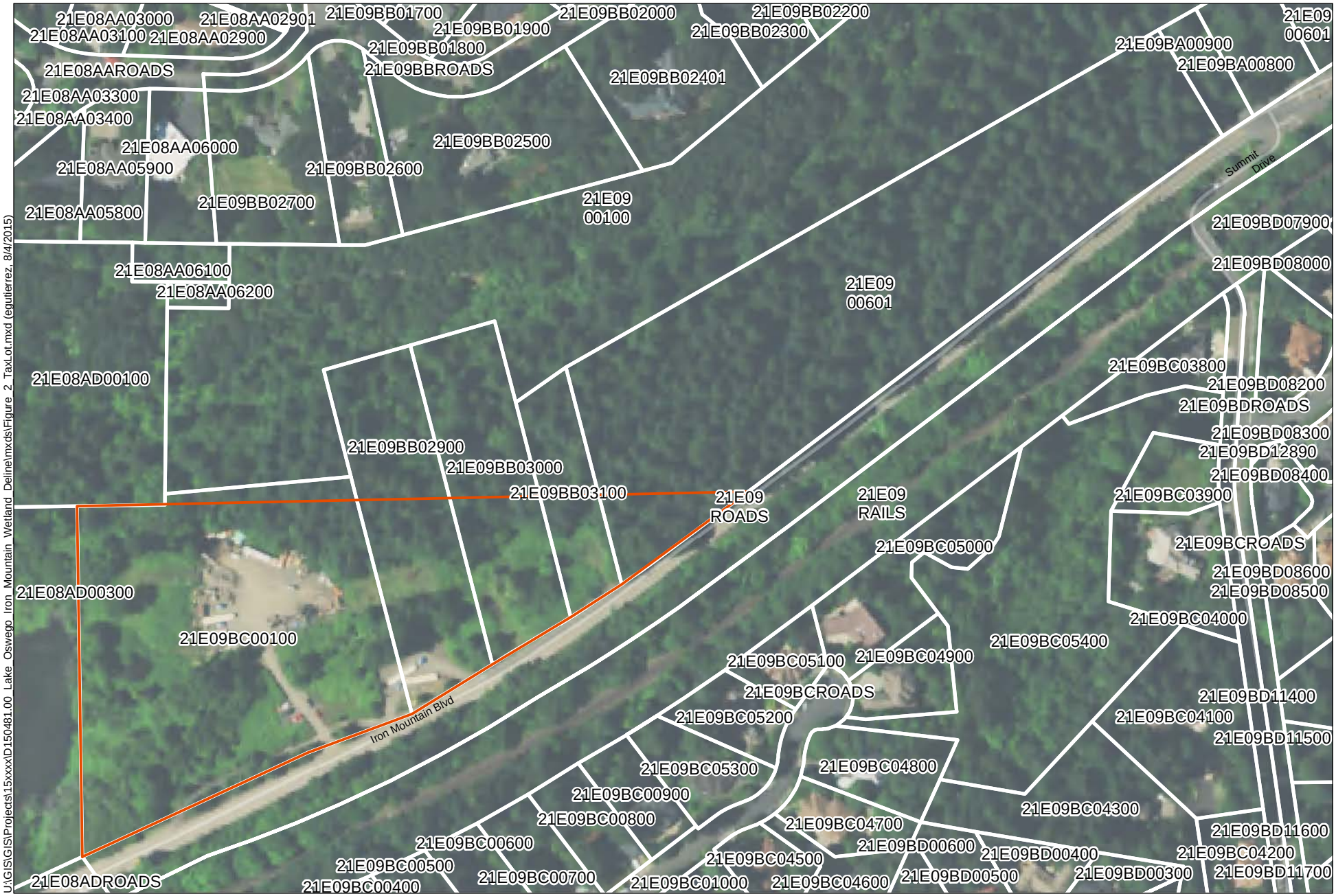
ESA

Iron Mountain Wetland Delineation. D150481.00

Figure 1

Location Map

SOURCE: ESA 2015 (Site Boundary); GoogleEarth 2015 (Routes); NAIP 2014 (Aerial).



Legend

Study Area

Tax Lot Boundaries

0 200
Feet

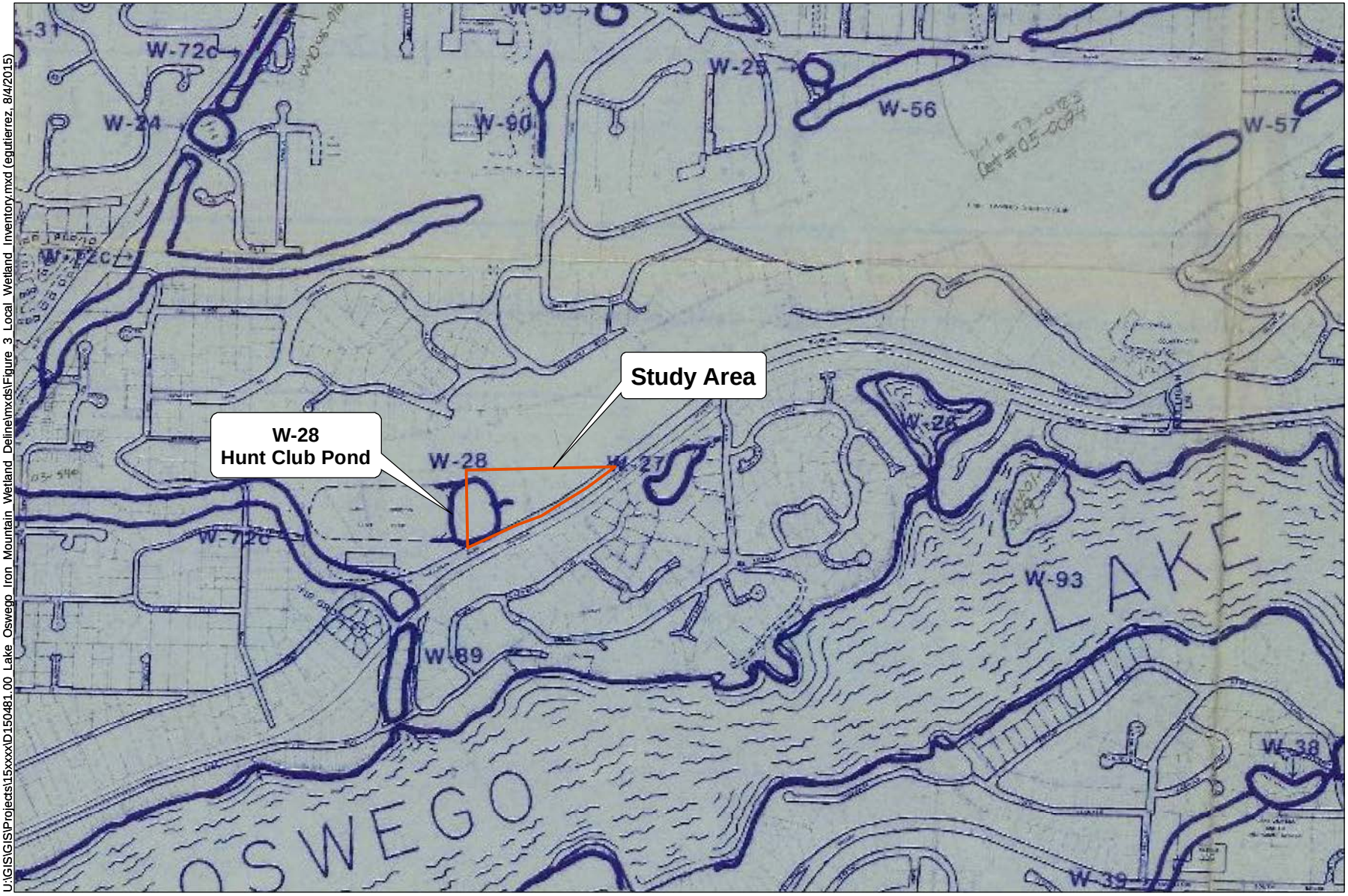
ESA

Iron Mountain Wetland Delineation. D150481.00

Figure 2

Taxlot Map

SOURCE:ESA 2015 (Study Area); METRO 2015 (Taxlot lines); NAIP 2014 (Aerial).



Legend

Study Area

0 1,000 Feet

ESA

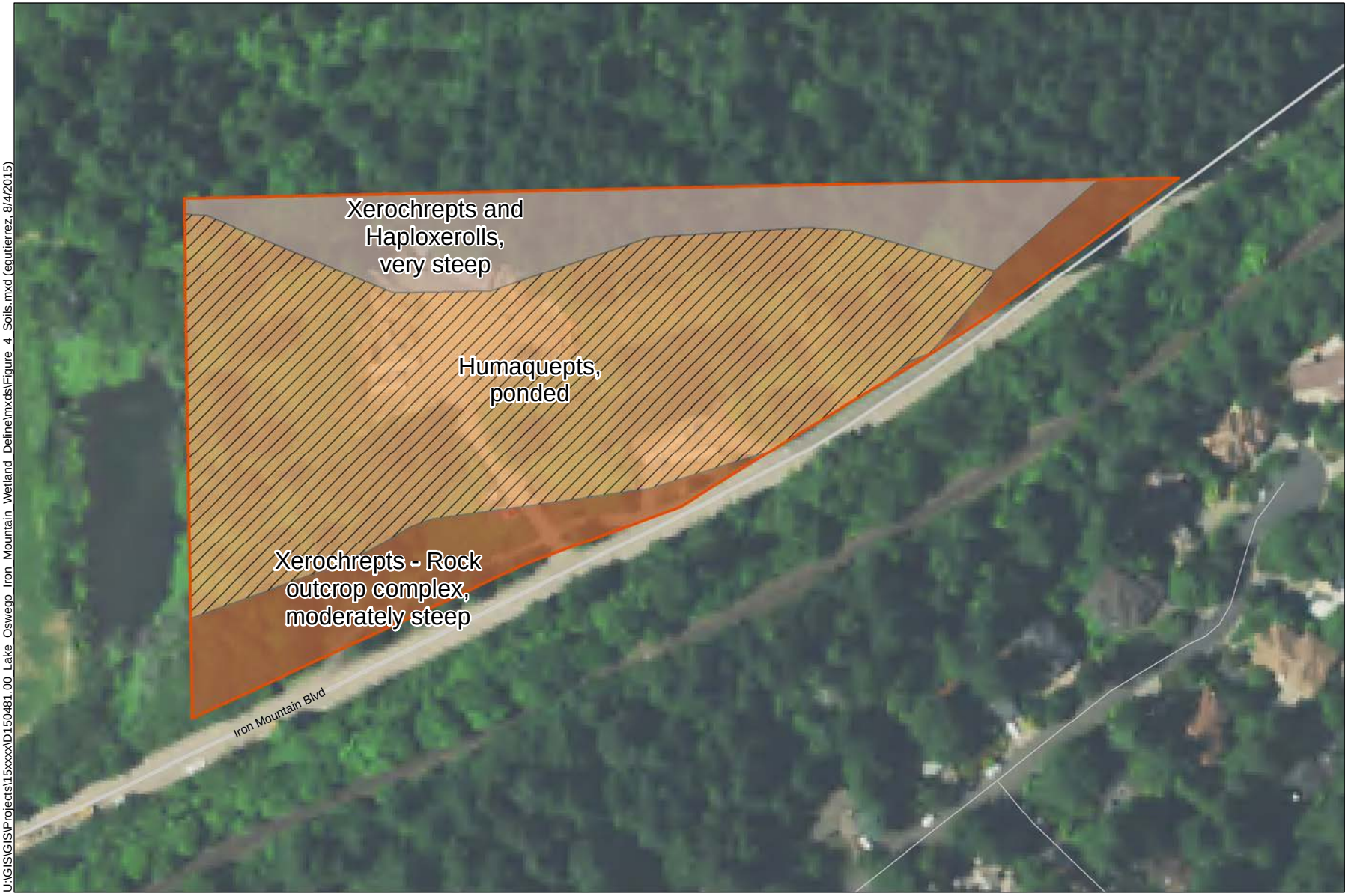
Iron Mountain Wetland Delineation. D150481.00

Figure 3

Local Wetland Inventory Map

SOURCE:ESA 2015 (Study Area); Oregon LWI 2013 (LWI Map).

U:\GIS\GIS\Projects\15xxxx\D150481.00_Lake_Oswego_Iron_Mountain_Wetland_Deline\mxds\Figure_3_Local_Wetland_Inventory.mxd (egutierrez, 8/4/2015)



U:\GIS\GIS\Projects\15xxxx\D150481.00_Lake_Oswego_Iron_Mountain_Wetland_Deline\mxds\Figure_4_Soils.mxd (egutierrez, 8/4/2015)

Legend

Study Area

Hydric Soil

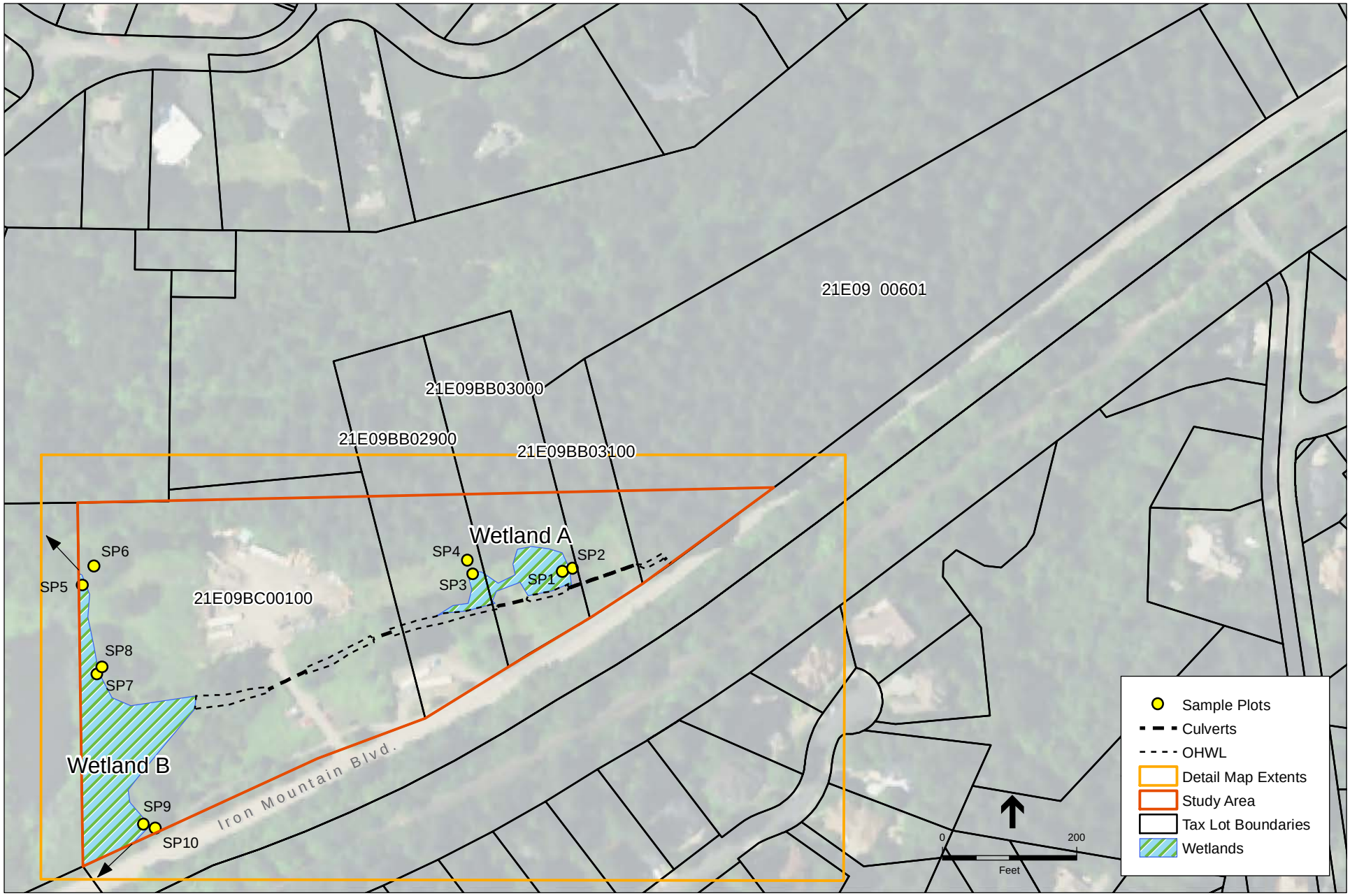
0 150
Feet

ESA

Iron Mountain Wetland Delineation. D150480.00

Figure 4
Soils Map

SOURCE:ESA 2015 (Study Area); USDA Web Soil Survey (Soils); NAIP 2014 (Aerial).



SOURCE:ESA 2015 (Study Area); Statewide Land Surveying Inc. 2015 (Survey); METRO 2015 (Taxlot lines); NAIP 2014 (Aerial).

ESA

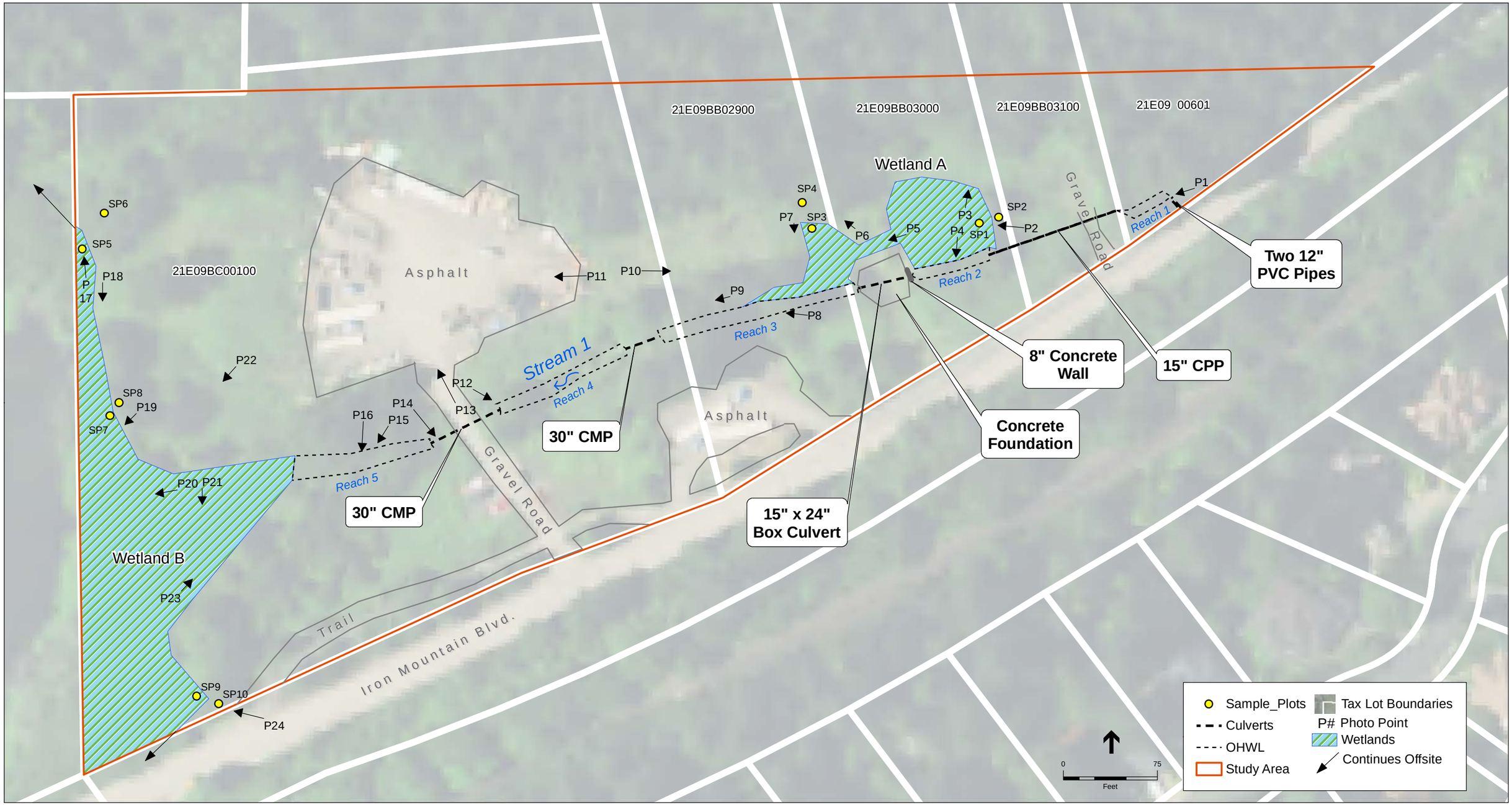
Iron Mountain Wetland Delineation. D150481.00

Figure 5.1

Wetland Delineation Index Map

Mapping Method/Precision Statement:

All wetland sample plots, boundary flags, and OHWL flags were professionally land surveyed by Statewide Land Surveying in August, 2015 with an accuracy of +/- 0.1 ft. The OHWL of Stream 1 just below the two 12" PVC pipe outlets is 128' NGVD29 and the OHWL at the west end of Reach 5 is 122.5' NGVD29



SOURCE:ESA 2015 (Study Area); Statewide Land Surveying Inc. 2015 (Survey); METRO 2015 (Taxlot lines); NAIP 2014 (Aerial).

ESA

Iron Mountain Wetland Delineation. D150481.00

Figure 5.2

Wetland Delineation Detail Map

Mapping Method/Precision Statement:

All wetland sample plots, boundary flags, and OHWL flags were professionally land surveyed by Statewide Land Surveying in August, 2015 with an accuracy of +/- 0.1 ft.

The OHWL of Stream 1 just below the two 12" PVC pipe outlets is 128' NGVD29 and the OHWL at the west end of Reach 5 is 122.5' NGVD29

APPENDIX B:
WETLAND DETERMINATION DATA FORMS

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

Project/Site: Iron Mountain City/County: Lake Oswego / Clackamas Sampling Date: 7/7/2015
Applicant/Owner: City of Lake Oswego State: OR Sampling Point: SP1
Investigator(s): Sarah Hartung Section, Township, Range: S9, T2S, R1E
Landform (hillslope, terrace, etc.): Base of slope Local relief (concave, convex, none): None Slope (%): 3
Subregion (LRR): A: NW Forests & Coast Lat: 45.414722° Long: -122.700078 Datum:
Soil Map Unit Name: Humaquepts, ponded (42) NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? ___ Are "Normal Circumstances" present? Yes **X** No ___
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? ___ (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No ___
Hydric Soil Present? Yes X No ___
Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? **Yes X** **No** ___

Remarks: Drier than normal

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. Scirpus microcarpus	75	*	OBL
2. Equisetum arvense	5		FAC
3. Agrostis stolonifera	5		FAC
4. Epilobium ciliatum	5		FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ___ (A)

Total Number of Dominant Species Across All Strata: ___ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: #DIV/0! (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1= 0
FACW species		x 2= 0
FAC species		x 3= 0
FACU species		x 4= 0
UPL species		x 5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X 1- Rapid Test For Hydrophytic Vegetation
___ 2- Dominance Test is >50%
___ 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]
___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No** ___

Remarks:

SOIL

Sampling Point: SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-7	10YR 2/1	92	10YR 3/4	8	C	M	Cl Lo	Plastic debris, tarp fragments
7-9	2.5Y 8/1	95	10YR 4/4	5	C	PL	Si/Chalk	Silty/Chalky fill
9-20	10YR 4/1	90	10YR 4/4	10	C	Pl, M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix. [3]Note: Sa = Sand. Si = Silt, Cl = Clay, Lm = Loam

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

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

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[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** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (Inches): ___
Water Table Present?	Yes ___	No X	Depth (Inches): >20
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (Inches): >20

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks: B6 -> cracked soil betw. Sc. Mic clumps & under thatch

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

Project/Site: Iron Mountain City/County: Lake Oswego / Clackamas Sampling Date: 7/7/2015
Applicant/Owner: City of Lake Oswego State: OR Sampling Point: SP2
Investigator(s): Sarah Hartung Section, Township, Range: S9, T2S, R1E
Landform (hillslope, terrace, etc.): berm / slope Local relief (concave, convex, none): none Slope (%): 5-8
Subregion (LRR): A: NW Forests & Coast Lat: 45.414706 Long: -122.699976 Datum:
Soil Map Unit Name: Humaquepts, ponded (42) NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? ___ Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? ___ (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ___ No X
Hydric Soil Present? Yes ___ No X
Wetland Hydrology Present? Yes ___ No X

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks: Drier than normal, in east end near old house foundation

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	40	*	FACU
2.			
3.			
4.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1. Rubus armeniacus	80	*	FACU
2.			
3.			
4.			
5.			
	80	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. Equisetum arvense	20	*	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 80

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1= 0
FACW species		x 2= 0
FAC species		x 3= 0
FACU species		x 4= 0
UPL species		x 5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1- Rapid Test For Hydrophytic Vegetation
___ 2- Dominance Test is >50%
___ 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]
___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks:

SOIL

Sampling Point: SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	10YR 3/2	100					Si Lm	w/ debris (see below)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix. [3]Note: Sa = Sand. Si = Silt, Cl = Clay, Lm = Loam

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

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

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Rock/debris

Depth (inches): 16

Hydric Soil Present? **Yes** ___ **No** X

Remarks: (cont'd from above…. w/ debris and white chalky pockets), near old metal drum. Soil dry and crumbly

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (Inches): ___
Water Table Present?	Yes ___	No X	Depth (Inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (Inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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: Iron Mountain City/County: Lake Oswego / Clackamas Sampling Date: 7/7/2015
Applicant/Owner: City of Lake Oswego State: OR Sampling Point: SP3
Investigator(s): Sarah Hartung Section, Township, Range: S9, T2S, R1E
Landform (hillslope, terrace, etc.): Base of slope Local relief (concave, convex, none): None Slope (%): 3-5
Subregion (LRR): A: NW Forests & Coast Lat: 45.414578 Long: -122.700508 Datum: NGVD 29
Soil Map Unit Name: Humaquepts, ponded (42) NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? ___ Are "Normal Circumstances" present? Yes **X** No ___
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? ___ (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No ___
Hydric Soil Present? Yes X No ___
Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? **Yes X** **No** ___

Remarks: Drier than normal

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1. Spiraea douglasii	50	*	FACW
2. Cornus alba	15	*	FACW
3. Rubus armeniacus	10		FACU
4.			
5.			
	75	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. Equisetum arvense	50	*	FAC
2. Scirpus microcarpus	15	*	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 35

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1= 0
FACW species		x 2= 0
FAC species		x 3= 0
FACU species		x 4= 0
UPL species		x 5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1- Rapid Test For Hydrophytic Vegetation
- X 2- Dominance Test is >50%
- ___ 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]
- ___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No** ___

Remarks:

SOIL

Sampling Point: SP3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	10YR 3/1	100					Si Lm	
4-20	10YR 3/1	80	10YR 3/4	10	C	M, PL	Si Cl Lm	
			10YR 5/3	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix. [3]Note: Sa = Sand. Si = Silt, Cl = Clay, Lm = Loam

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[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** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (Inches): ___
Water Table Present?	Yes ___	No X	Depth (Inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (Inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Iron Mountain City/County: Lake Oswego / Clackamas Sampling Date: 7/7/2015
Applicant/Owner: City of Lake Oswego State: OR Sampling Point: SP4
Investigator(s): Sarah Hartung Section, Township, Range: S9, T2S, R1E
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 10
Subregion (LRR): A: NW Forests & Coast Lat: 45.414618 Long: -122.700517 Datum:
Soil Map Unit Name: NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? ___ Are "Normal Circumstances" present? Yes **X** No ___
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? ___ (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ___ No X
Hydric Soil Present? Yes ___ No X
Wetland Hydrology Present? Yes ___ No X

Is the Sampled Area within a Wetland? **Yes** ___ **No X**

Remarks: Opposite side of wetland A

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	10		FACU
2. Acer macrophyllum	60	*	FACU
3. Crataegus monogyna	10		FAC
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1. Crataegus monogyna	40	*	FAC
2. Acer macrophyllum	30	*	FACU
3. Rubus armeniacus	10		FACU
4. Symphoricarpos albus	5		FACU
5. Corylus cornuta	5		FACU
	90	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. Equisetum arvense	40	*	FAC
2. Hedera helix	60	*	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1= 0
FACW species		x 2= 0
FAC species		x 3= 0
FACU species		x 4= 0
UPL species		x 5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1- Rapid Test For Hydrophytic Vegetation
___ 2- Dominance Test is >50%
___ 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]
___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No X**

Remarks:

SOIL

Sampling Point: SP4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	10YR 3/2	100					Si Lm	(see remarks below)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix. [3]Note: Sa = Sand. Si = Silt, Cl = Clay, Lm = Loam

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

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

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock/roots/debris

Depth (inches): 16

Hydric Soil Present? **Yes** ___ **No** X

Remarks: Metal debris, wire on surface and in profile with 20% rock

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (Inches): ___
Water Table Present?	Yes ___	No X	Depth (Inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (Inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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: Iron Mountain City/County: Lake Oswego / Clackamas Sampling Date: 7/7/2015
Applicant/Owner: City of Lake Oswego State: OR Sampling Point: SP5
Investigator(s): Sarah Hartung Section, Township, Range: S8, T2S, R1E
Landform (hillslope, terrace, etc.): Edge of pond Local relief (concave, convex, none): Concave Slope (%): 3
Subregion (LRR): A: NW Forests & Coast Lat: 45.414511 Long: -122.702914 Datum:
Soil Map Unit Name: Humaquepts, ponded (42) NWI classification: Pond
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? ___ Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? ___ (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No ___
Hydric Soil Present? Yes X No ___
Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? **Yes** X **No** ___

Remarks: Drier than normal. 2' below upland plot

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1. Salix sitchensis	60	*	FACW
2. Cornus alba	20	*	FACW
3. Rubus armeniacus	5		FACU
4.			
5.			
	85	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. Ipomoea purpurea	20	*	UPL
2. Glyceria elata	30	*	FACW
3. Hedera helix	20	*	FACU
4. Juncus effusus	5		FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 25

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1= 0
FACW species		x 2= 0
FAC species		x 3= 0
FACU species		x 4= 0
UPL species		x 5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1- Rapid Test For Hydrophytic Vegetation
- X 2- Dominance Test is >50%
- ___ 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]
- ___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks:

SOIL

Sampling Point: SP5

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-3	10YR 3/2	100					Silt	w/ wood and leaves
3-18	10YR 3/1	90	10YR 3/3	10	C	M	Sa Si	(see remarks)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix. [3]Note: Sa = Sand. Si = Silt, Cl = Clay, Lm = Loam

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

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

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Rock

Depth (inches): 18

Hydric Soil Present? **Yes** X **No** ___

Remarks: Cont'd from above for 3-18 inches: with 30% gravel, rock, and decomposed wood

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (Inches): ___
Water Table Present?	Yes X	No ___	Depth (Inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (Inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks: Surface water located 10' away from plot 1/2 - 1", glistening

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

Project/Site: Iron Mountain City/County: Lake Oswego / Clackamas Sampling Date: 7/7/2015
Applicant/Owner: City of Lake Oswego State: OR Sampling Point: SP6
Investigator(s): Sarah Hartung Section, Township, Range: S9, T2S, R1E
Landform (hillslope, terrace, etc.): Fill terrace / base of slope Local relief (concave, convex, none): Convex Slope (%): 3-5
Subregion (LRR): A: NW Forests & Coast Lat: 45.414518 Long: -122.702824 Datum:
Soil Map Unit Name: Humaquepts, ponded (42) NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? ___ Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? ___ (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No ___
Hydric Soil Present? Yes ___ No X
Wetland Hydrology Present? Yes ___ No X

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks: Drier than normal. North end of Wetland B upland plot, 1-2' above wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiandra	30	*	FACW
2. Acer macrophyllum	15	*	FACU
3. Alnus rubra	15	*	FAC
4.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1. Rubus armeniacus	40	*	FACU
2. Cornus alba	20	*	FACW
3. Crataegus monogyna	10		FAC
4.			
5.			
	70	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. Phalaris arundinacea	20	*	FACW
2. Geranium robertianum	40	*	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1= 0
FACW species		x 2= 0
FAC species		x 3= 0
FACU species		x 4= 0
UPL species		x 5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1- Rapid Test For Hydrophytic Vegetation
- X 2- Dominance Test is >50%
- ___ 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]
- ___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks:

SOIL

Sampling Point: SP6

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	10YR 3/2	100					Si Lm	rocks, debris/wood

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix. [3]Note: Sa = Sand. Si = Silt, Cl = Clay, Lm = Loam

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

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

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Rock / debris

Depth (inches): 12

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (Inches): ___
Water Table Present?	Yes ___	No X	Depth (Inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (Inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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: Iron Mountain City/County: Lake Oswego / Clackamas Sampling Date: 7/7/2015
Applicant/Owner: City of Lake Oswego State: OR Sampling Point: SP7
Investigator(s): Sarah Hartung Section, Township, Range: S8, T2S, R1E
Landform (hillslope, terrace, etc.): Pond edge Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR): A: NW Forests & Coast Lat: 45.414185 Long: -122.702848 Datum:
Soil Map Unit Name: Humaquepts, ponded (42) NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? ___ Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? ___ (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No ___
Hydric Soil Present? Yes X No ___
Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? **Yes X** **No ___**

Remarks: Drier than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiandra	10	*	FACW
2.			
3.			
4.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1. Salix lasiandra	30	*	FACW
2. Salix sitchensis	10	*	FACW
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. Hydrocotyle ranunculoides	80	*	OBL
2. Equisetum arvense	10		FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ___ (A)

Total Number of Dominant Species Across All Strata: ___ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: #DIV/0! (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1= 0
FACW species		x 2= 0
FAC species		x 3= 0
FACU species		x 4= 0
UPL species		x 5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X 1- Rapid Test For Hydrophytic Vegetation
___ 2- Dominance Test is >50%
___ 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]
___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No ___**

Remarks:

SOIL

Sampling Point: SP7

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	10YR 3/1	95	10YR 3/3	5	C	M	Si Lm	w/ organic material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix. [3]Note: Sa = Sand. Si = Silt, Cl = Clay, Lm = Loam

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

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

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: 16

Depth (inches): muck

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (Inches):	1"
Water Table Present?	Yes X	No ___	Depth (Inches):	0
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (Inches):	0

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Iron Mountain City/County: Lake Oswego / Clackamas Sampling Date: 7/7/2015
Applicant/Owner: City of Lake Oswego State: OR Sampling Point: SP8
Investigator(s): Sarah Hartung Section, Township, Range: S8, T2S, R1E
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 3
Subregion (LRR): A: NW Forests & Coast Lat: 45.414205 Long: -123.70277 Datum: NGVD 29
Soil Map Unit Name: Humaquepts, ponded (42) NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? ___ Are "Normal Circumstances" present? Yes **X** No ___
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? ___ (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ___ No X
Hydric Soil Present? Yes ___ No X
Wetland Hydrology Present? Yes ___ No X

Is the Sampled Area within a Wetland? **Yes** ___ **No** **X**

Remarks: Drier than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	40	*	FACU
2. Malus fusca	25	*	FACW
3. Crataegus monogyna	10		FAC
4.			
	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1. Rubus armeniacus	60	*	FACU
2.			
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. Hedera helix	80	*	FACU
2. Equisetum arvense	10		FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1= 0
FACW species		x 2= 0
FAC species		x 3= 0
FACU species		x 4= 0
UPL species		x 5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1- Rapid Test For Hydrophytic Vegetation
___ 2- Dominance Test is >50%
___ 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]
___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** **X**

Remarks:

SOIL

Sampling Point: SP8

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	10YR 3/2	100					Si Lm	w/ rocks, gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix. [3]Note: Sa = Sand. Si = Silt, Cl = Clay, Lm = Loam

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

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

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[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** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (Inches): _____
Water Table Present?	Yes ___	No X	Depth (Inches): _____
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (Inches): _____

Wetland Hydrology Present? **Yes** ___ **No** X

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: Iron Mountain City/County: Lake Oswego / Clackamas Sampling Date: 7/7/2015
Applicant/Owner: City of Lake Oswego State: OR Sampling Point: SP9
Investigator(s): Sarah Hartung Section, Township, Range: S8, T2S, R1E
Landform (hillslope, terrace, etc.): Low edge of pond Local relief (concave, convex, none): slight concave Slope (%): 1
Subregion (LRR): A: NW Forests & Coast Lat: 45.41354 Long: -122.702385 Datum:
Soil Map Unit Name: Xerochrepts (93E) NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? ___ Are "Normal Circumstances" present? Yes **X** No ___
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? ___ (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No ___
Hydric Soil Present? Yes X No ___
Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? **Yes X** **No** ___

Remarks: Drier than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1. Rubus armeniacus	30	*	FACU
2. Salix sitchensis	50	*	FACW
3.			
4.			
5.			
	80	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. Athyrium filix-femina	20	*	FAC
2. Equisetum arvense	20	*	FAC
3. Ilex aquifolium	20	*	FACU
4.			
5.			
6.			
7.			
8. Hedera helix			FACU
9.			
10.			
11.			
	60	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1= 0
FACW species		x 2= 0
FAC species		x 3= 0
FACU species		x 4= 0
UPL species		x 5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1- Rapid Test For Hydrophytic Vegetation
- X 2- Dominance Test is >50%
- ___ 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]
- ___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No** ___

Remarks:

SOIL

Sampling Point: SP9

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-20	10YR 3/1	93	10YR 3/3	7	C	PL	Si Cl	w/ organic material, leaves

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix. [3]Note: Sa = Sand. Si = Silt, Cl = Clay, Lm = Loam

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

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

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[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** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (Inches): ___
Water Table Present?	Yes X	No ___	Depth (Inches): 10
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (Inches): 8

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

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

Project/Site: Iron Mountain City/County: Lake Oswego / Clackamas Sampling Date: 7/7/2015
Applicant/Owner: City of Lake Oswego State: OR Sampling Point: SP10
Investigator(s): Sarah Hartung Section, Township, Range: S8, T2S, R1E
Landform (hillslope, terrace, etc.): Berm/slope Local relief (concave, convex, none): Convex Slope (%): 3
Subregion (LRR): A: NW Forests & Coast Lat: 45.4143423 Long: -122.702337 Datum:
Soil Map Unit Name: Xerochrepts (93E) NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? ___ Are "Normal Circumstances" present? Yes **X** No ___
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? ___ (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ___ No X
Hydric Soil Present? Yes ___ No X
Wetland Hydrology Present? Yes ___ No X

Is the Sampled Area within a Wetland? **Yes** ___ **No** **X**

Remarks: Drier than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	50	*	FACU
2. Pseudotsuga menziesii	5		FACU
3.			
4.			
	55	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1. Rubus armeniacus	60	*	FACU
2. Crataegus monogyna	20	*	FAC
3.			
4.			
5.			
	80	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. Equisetum arvense	40	*	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 60

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1= 0
FACW species		x 2= 0
FAC species		x 3= 0
FACU species		x 4= 0
UPL species		x 5= 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1- Rapid Test For Hydrophytic Vegetation
___ 2- Dominance Test is >50%
___ 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]
___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** **X**

Remarks:

SOIL

Sampling Point: SP10

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	10YR 3/2	95	10YR 3/3	5	C	M	Si Lm	w/ rocks (50%)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix. [3]Note: Sa = Sand. Si = Silt, Cl = Clay, Lm = Loam

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

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

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock/fiill

Depth (inches): 12

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (Inches): ___
Water Table Present? Yes ___ No X Depth (Inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (Inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

APPENDIX C: GROUND LEVEL COLOR PHOTOGRAPHS

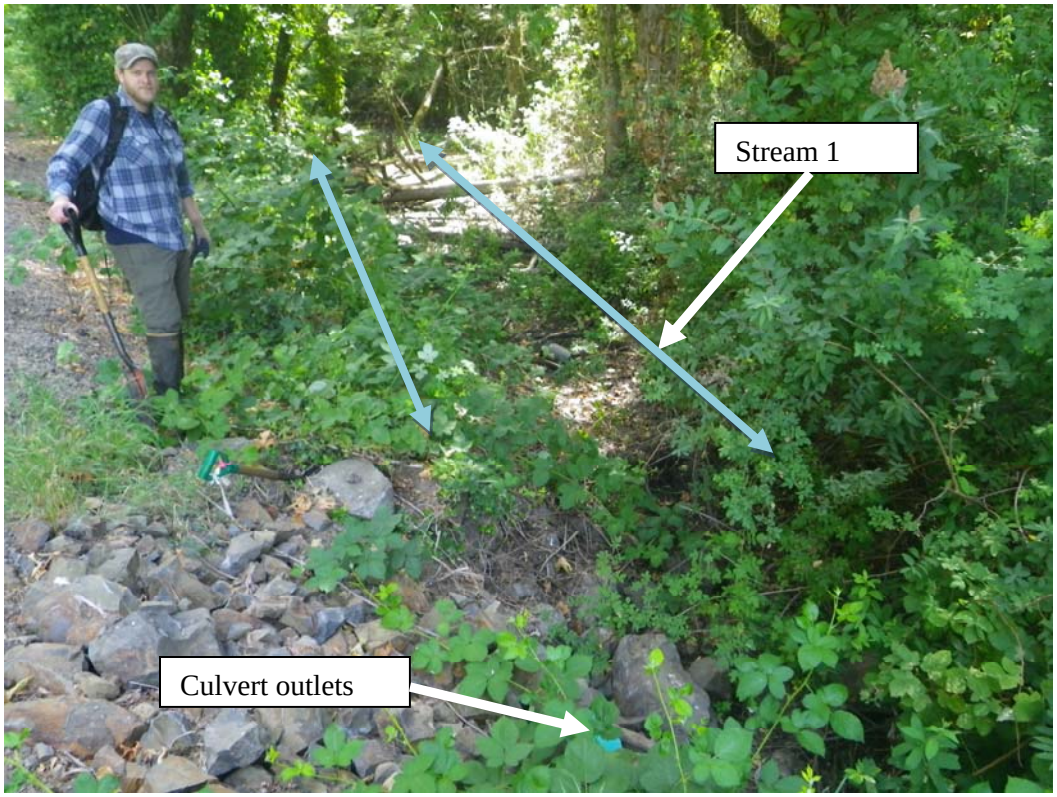


Photo 1: Looking west at the upstream segment (Reach 1) of Stream 1, OHWL is approximated in blue.

Photo 2: Looking west at Wetland A with sample plot 1 in the foreground.

Photo 3: Looking north at the eastern boundary of Wetland A approximated by the yellow line.

Photo 4: Reach 2 of Stream 1 had saturated soils at the channel bottom, but lacked surface water.

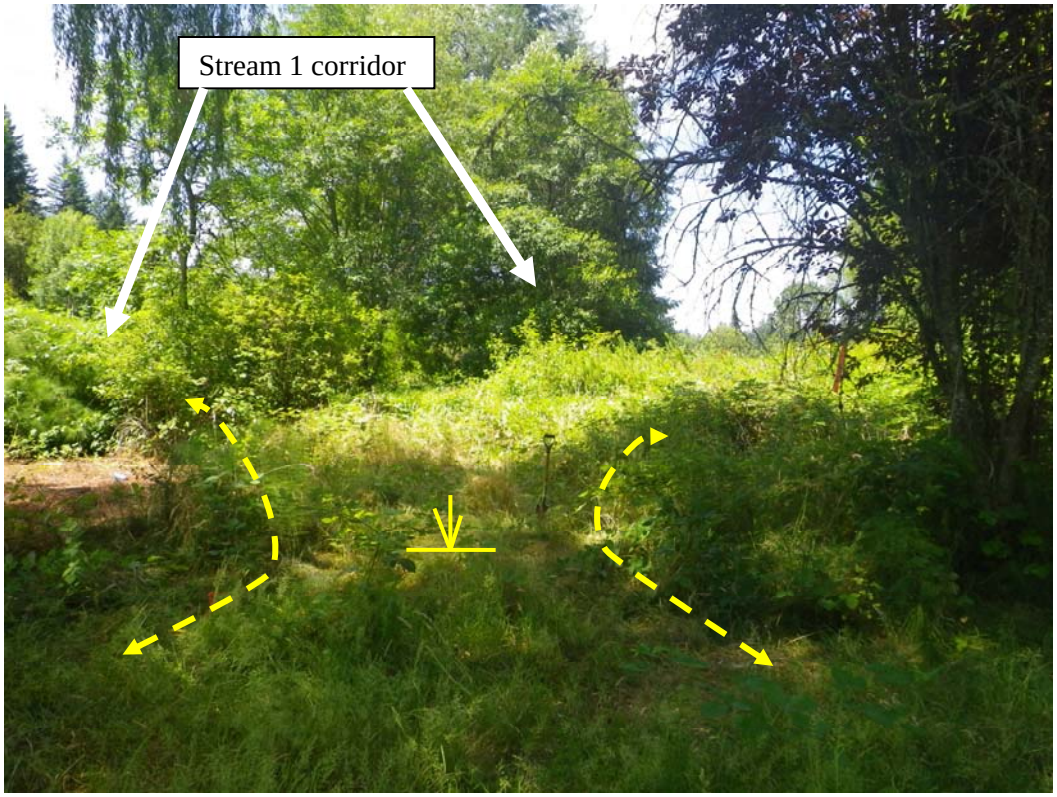


Photo 5: Looking west at the narrow neck connecting the eastern and western portions of Wetland A.

Photo 6: Looking northwest at the western portion of Wetland A. The wetland boundary extends to the base of the hillside where the upland forest begins.

Photo 7: Looking south at the western boundary of Wetland A approximated by the yellow line.

Photo 8: The OHWL of Stream 1 was flagged near the base of a red alder approximated by the blue line.

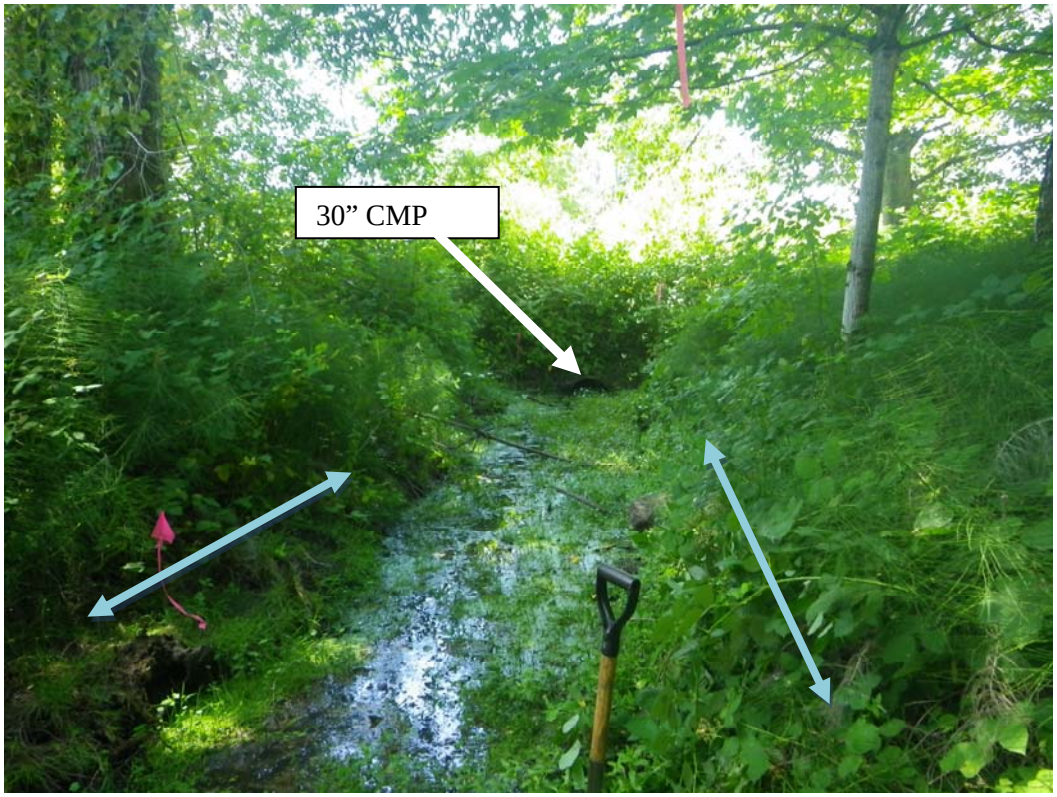


Photo 9: Looking downstream at the central reach (Reach 3) of Stream 1. OHWL in blue.

Photo 10: Looking east at upland grassland between Stream 1 riparian zone and the upland forest of Iron Mountain Park.

Photo 11: Looking west at construction staging (for an off-site project) in uplands.

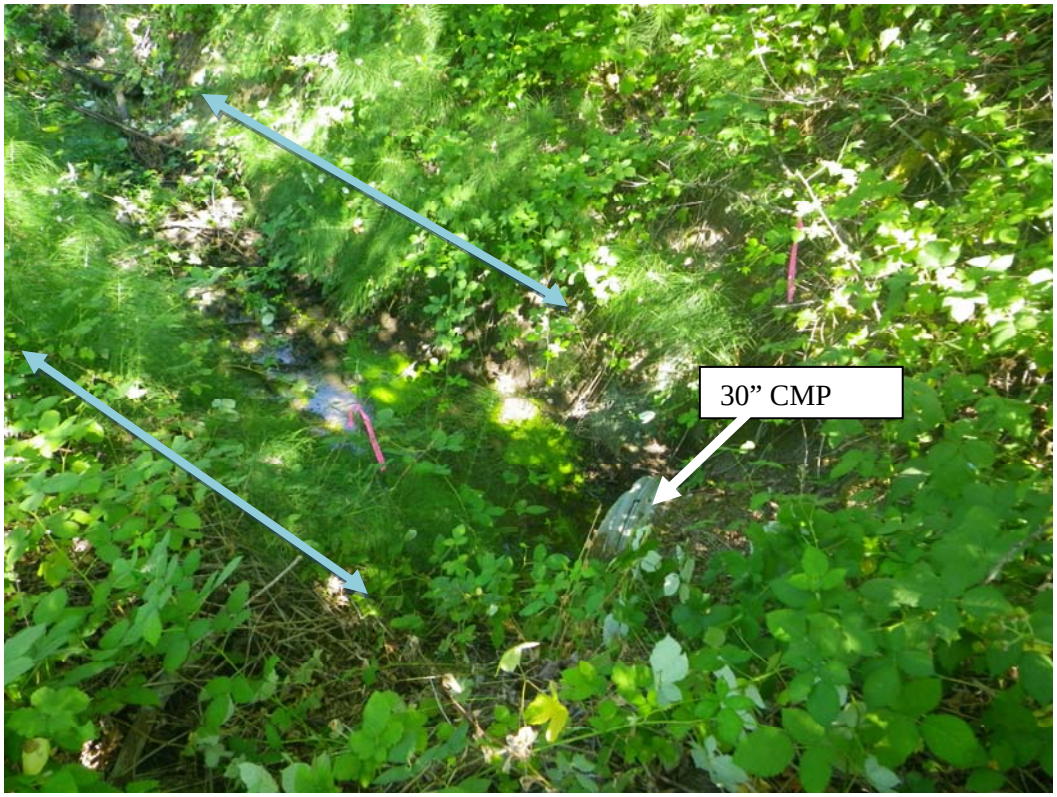


Photo 12: OHWL of Stream 1 defined by soil slumping and shelving at the base of steep banks. Flow was detected in this segment (Reach 4).

Photo 13: Construction staging within the study area at the base of a steep hillslope.

Photo 14: Looking at the outlet of Reach 5 of Stream 1.

Photo 15: Looking downstream at the western-most segment of Stream 1. Note the dense vegetation.

Photo 16: OHWL of Stream 1 flagged just below tree trunks.

Photo 17: Shallow ponding and soil saturation among dense willows at the north end of Wetland B.

Photo 18: Looking south at Wetland B to the right of the yellow line, uplands/dense blackberry to the left.

Photo 19: Looking west and off-site at the Hunt Club pond.

Photo 20: Looking southwest at dense marsh pennywort and scattered willows.

Photo 21: Looking south at Wetland B with upland shrub/woodland in the background.

Photo 22: Looking southwest at upland grassland/blackberries adjacent to Wetland B.

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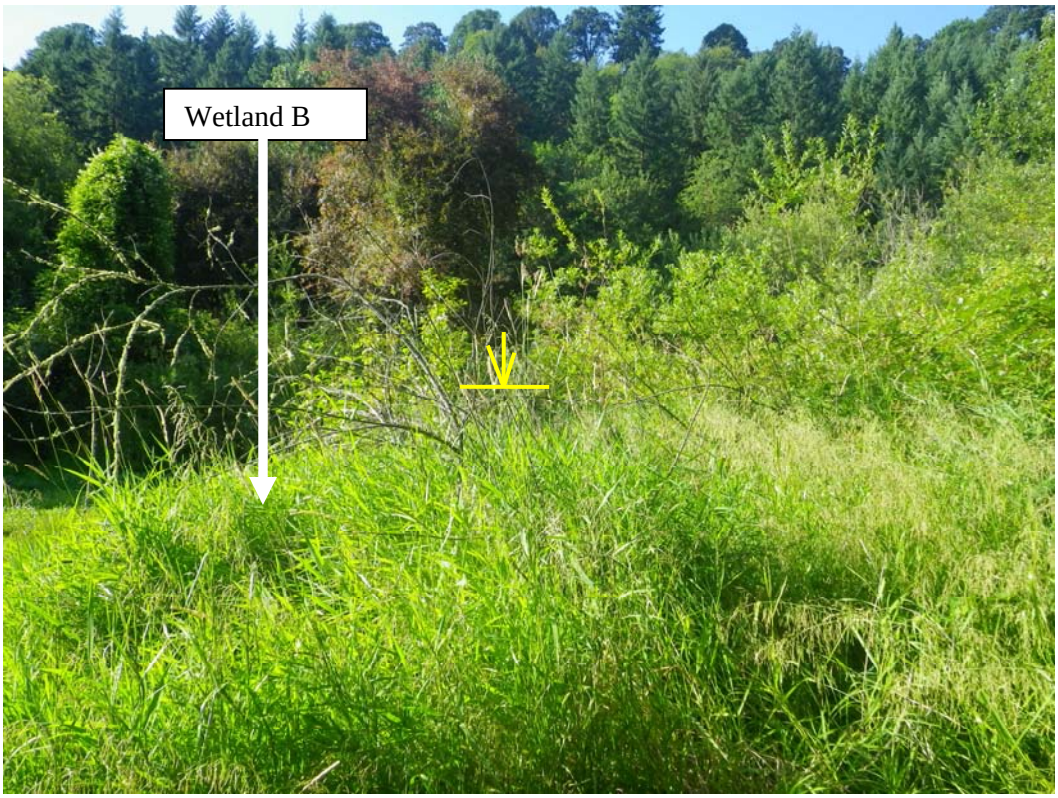

Photo 23: Looking northeast at Wetland B with dense reed canarygrass in the foreground.

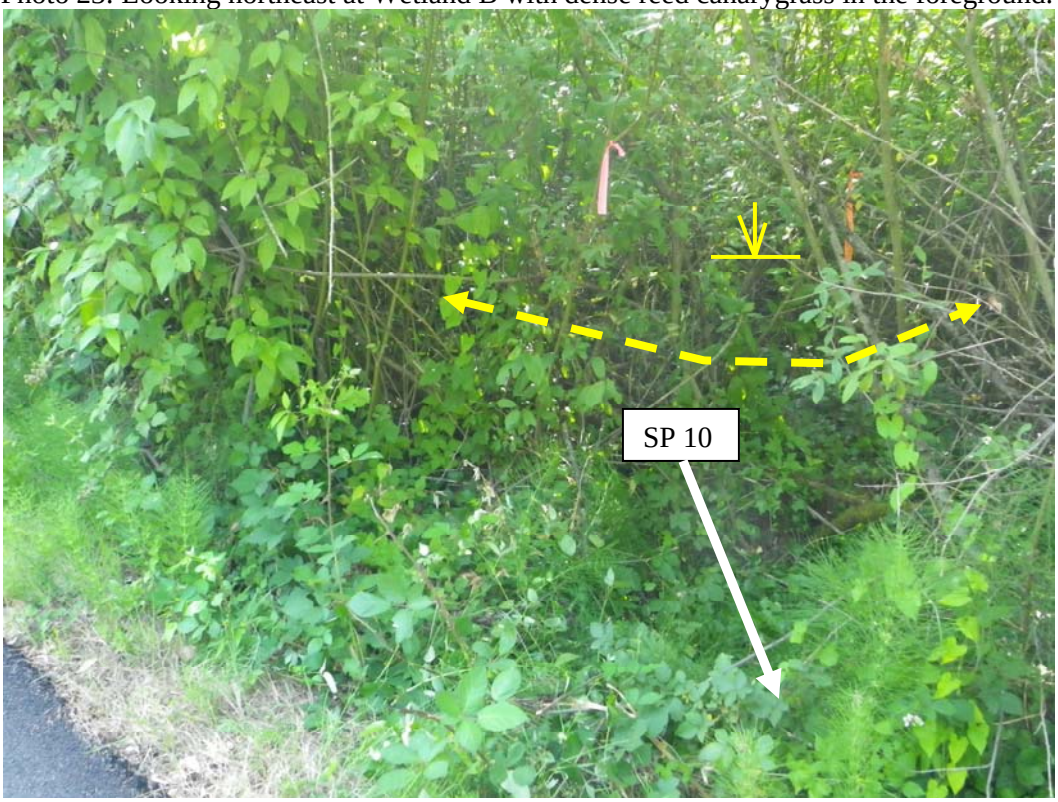

Photo 24: Looking at the southern portion of Wetland B near the edge of road.

APPENDIX D: ADDITIONAL INFORMATION

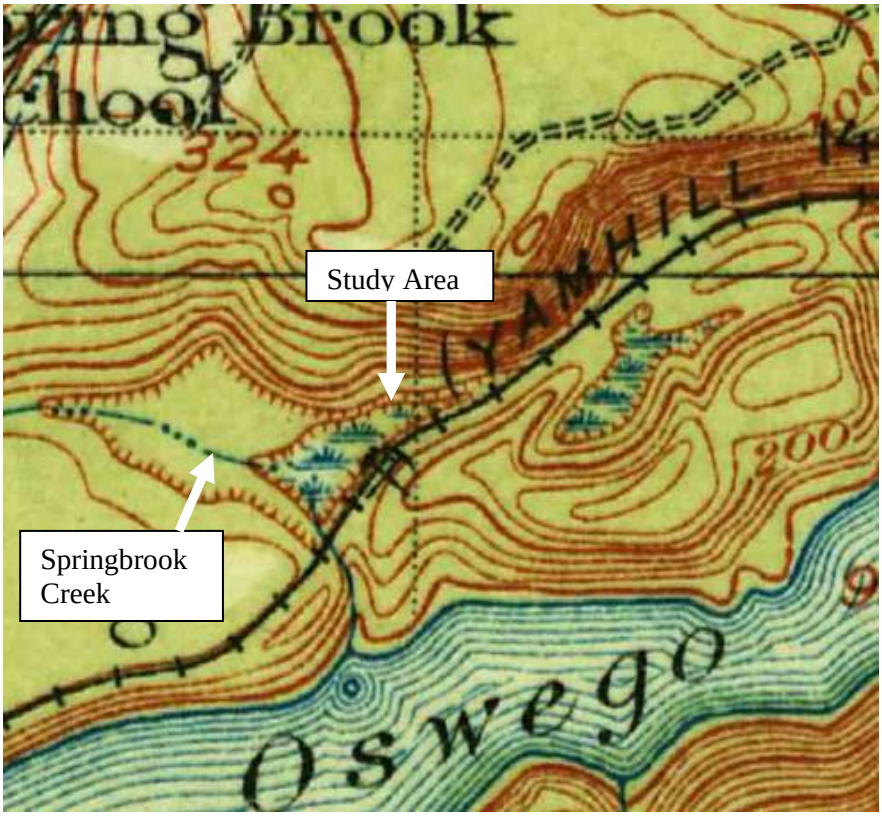

Exhibit D – 1: Study area and vicinity in 1914, USGS.

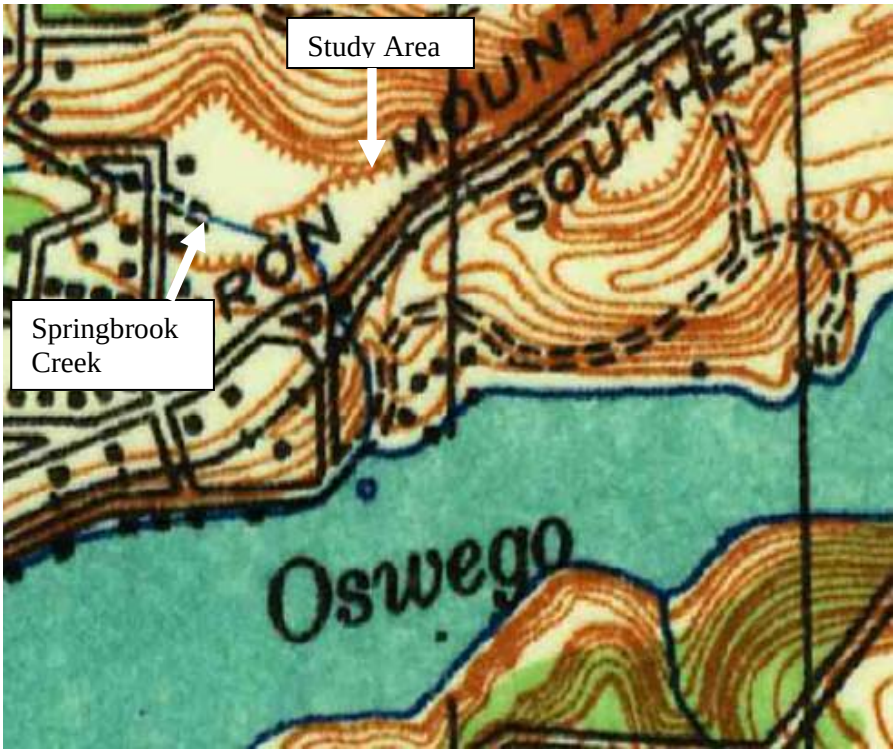

Exhibit D – 2: Study area and vicinity in 1941, USGS.

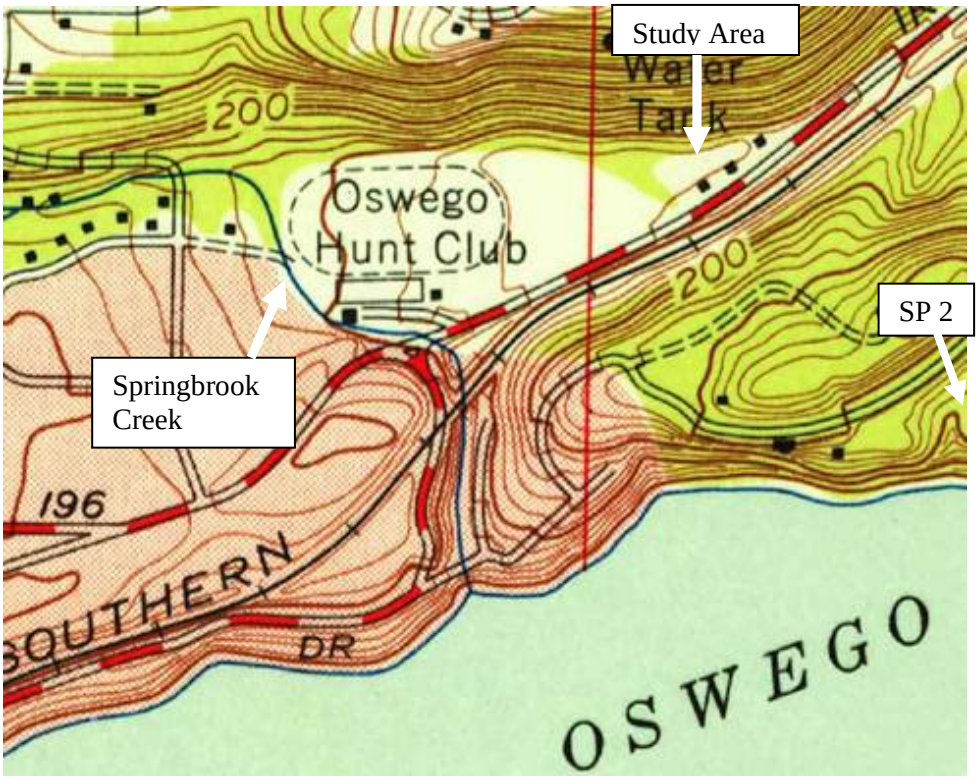

Exhibit D – 3: Study area and vicinity in 1954, USGS.

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