Wetland Delineation for the 35th and Oak Street Site in Florence, Oregon

(Township 18 South, Range 12 West, Section 22AA, Tax Lot 1100, 1200 and portion of the Oak Street Right-of-Way)

6-28-21

Prepared for

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PHS Project Number: 7127

June 28, 2021

TABLE OF CONTENTS

I. INTRODUCTION

Pacific Habitat Services, Inc. (PHS) conducted a wetland delineation at located at the intersection of 35th and Oak Street in Florence, Oregon (Township 18 South, Range 12 West, Section 22AA, Tax Lot 1100, 1200 and portion of the Oak Street Right-of-Way (ROW)) on April 8, 2021. This report presents the results of PHS's delineation of the study area. Figures, including a map depicting the location of the study area are in Appendix A. Data sheets documenting on-site conditions are provided in Appendix B. Ground-level photos of the site are included in Appendix C. A discussion of the wetland delineation methodology (for the client) is provided in Appendix D.

II. RESULTS AND DISCUSSION

A. Landscape Setting and Land Use

The approximately 16- acre study area is located west of Oak Street and north of 35th Street in the City of Florence. This part of Florence is composed of dense residential development and a recreational golf course. A large percentage of open space and undeveloped lots in this area, including the study area, contain patchy forest with thick understories dominated by shore pine (*Pinus contorta*, FAC), salal (*Gaultheria shallon*, FACU), evergreen huckleberry (*Vaccinium ovatum*, FACU), and various weedy forbs and perennial grasses. The topography is gently sloping southeast with moderate dune slopes in the northwest corner, abutting an off-site City water facility and golf course. Elevations onsite range from approximately 50 feet to 80 feet according to the Florence, Oregon-7.5-minute topographic quadrangle map of Oregon (USGS, 2021).

Soils within the study area are typically light olive/yellowish brown sands. Mapped soil units within the study area include Dune land and Yaquina loamy fine sand (hydric) (USDA, 2021, Figure 4).

B. Site Alterations

The study area currently includes a cleared mowed lawn area bordering the 35th Street ROW to the south, as well as a mowed lawn area abutting properties bordering the east site boundary. There is a cleared pedestrian path running east to west along the northern property boundary, as well as several heavily utilized footpaths and encampments throughout the site.

C. Precipitation Data and Analysis

Table 1 compares the average monthly precipitation at the nearest Natural Resource Conservation Service's (NRCS) WETS station (HONEYMAN STATE PARK, OR) to the observed monthly precipitation at the FLORENCE 1.1 N, OR weather station in the three months prior to PHS's April 8, 2021, wetland delineation field work.

Table 1: Comparison of average monthly precipitation at the HONEYMAN STATE PARK, OR WETS station to observed monthly precipitation at the FLORENCE 1.1 N, OR weather station prior to the delineation fieldwork.

Month 2021	Average Precipitation*	30% Chance Will Have		Observed Precipitation**	Percent of Normal
		Less Than Average	More Than Average		
January	10.4	6.9	12.46	10.44	100
February	9.23	6.57	10.93	8.06	87
March	8.83	6.58	10.34	4.14	47

*NRCS WETS Table (HONEYMAN STATE PARK, OR) (https://www.wcc.nrcs.usda.gov/climate/navigate_wets.html)
**Monthly Total Precipitation (FLORENCE 1.1 N, OR) (https://www.wcc.nrcs.usda.gov/climate/navigate_wets.html)

Total observed precipitation for the water year up to the month of the field work (October 2020 through March 2021) was 41.98 inches, which is 82% of normal compared to the last twenty years of WETS station data across the same time period. Approximately 0.6 inches of precipitation was recorded during the two weeks prior to the field investigation, and 0.02 inches on the day of field work. Precipitation levels were considered adequate for determining the presence or absence of wetlands within the study area.

D. Methods

The study area was investigated for wetland/waters based on the presence of wetland hydrology, hydric soils, and hydrophytic vegetation in accordance with the Routine On-site Determination, as described in the *Corps of Engineers Wetland Delineation Manual, Wetlands Research Program Technical Report Y-87-1* ("The 1987 Manual") and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region.*

Several excavations were made across the site and examined for wetland conditions; however, no evidence of wetlands was observed. Data collection included the documentation of existing vegetation and the excavation of shallow holes to observe potential evidence of hydric soils and/or seasonally saturated conditions. Three sample points were recorded at locations of lowest topography and at locations where wetlands were previously mapped (WD00-485). These pits were examined for potential wetlands and displayed no evidence of characteristic wetland soils or hydrology. These previously mapped wetland areas contained some redoximorphic features in a high chroma matrix not meeting criteria for sandy redox (S5), or any other sandy soil criterion. Hydric soil was present at the location of sample point 3 solely based on the occurrence of a depleted matrix- however, the soil texture was sand and the hue and chroma were not representative of a depleted matrix, but rather silica-rich sand composition. Based upon the results of our assessment of the study area, the absence of potentially jurisdictional wetlands and waterways was confirmed.

E. Description of all Wetlands and Other Waters

PHS identified no potentially jurisdictional wetlands or waters of the state/U.S. within the study area.

F. Deviation from Local Wetland or National Wetland Inventories

The study area is within the Local Wetlands Inventory (LWI) map extent for the City of Florence (Figure 3A). The LWI displays four potential wetlands within the central study area, which align with an earlier delineation conducted in 2000 (WD00-485). The discrepancy is likely due to a reduction of hydrology on site, possibly from increasing development or an increase in encampment/foot traffic within the study area. At the time of the delineation, there was no distinct change in a topographic gradient or slope that would allow water to be retained for a long enough hydroperiod to induce wetland conditions.

G. Mapping Method

PHS placed the sample point locations on an aerial map in the field utilizing GPS. The sample point accuracy is plus or minus 3 feet. Tax lots were obtained from the Oregon Comprehensive Plan Map (ArcGIS.com), which have an accuracy of plus or minus 3 feet. Contours were obtained from the Oregon LiDAR Consortium and have an accuracy of plus or minus 3 feet.

H. Additional Information

An original wetland delineation (WD00-485) was conducted on site and mapped four wetland polygons shown on Figure 6. Another wetland delineation (WD10-0057) was conducted on site in 2010 by Daniel Evans, which evaluated wetland polygons mapped in 2000 and confirmed that wetlands were no longer present on site.

I. Results and Conclusions

PHS walked the entire study area to investigate the potential for wetland conditions on site. No potentially jurisdictional wetlands or waters of the state/U.S. were identified. Overall upland conditions are characterized by sample points 1-5 in Appendix B.

J. Required Disclaimer

This report documents the investigation, best professional judgment and conclusions of the investigators. It is correct and complete to the best of our 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 accordance with OAR 141-090-0005 through 141-090-0055.

III. REFERENCES

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National Resource Conservation Service (NRCS). Monthly Total Precipitation (FLORENCE 1.1 N, OR) *(https://www.wcc.nrcs.usda.gov/climate/navigate_wets.html)*

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US Army Corps of Engineers, Environmental Laboratory, 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0).*

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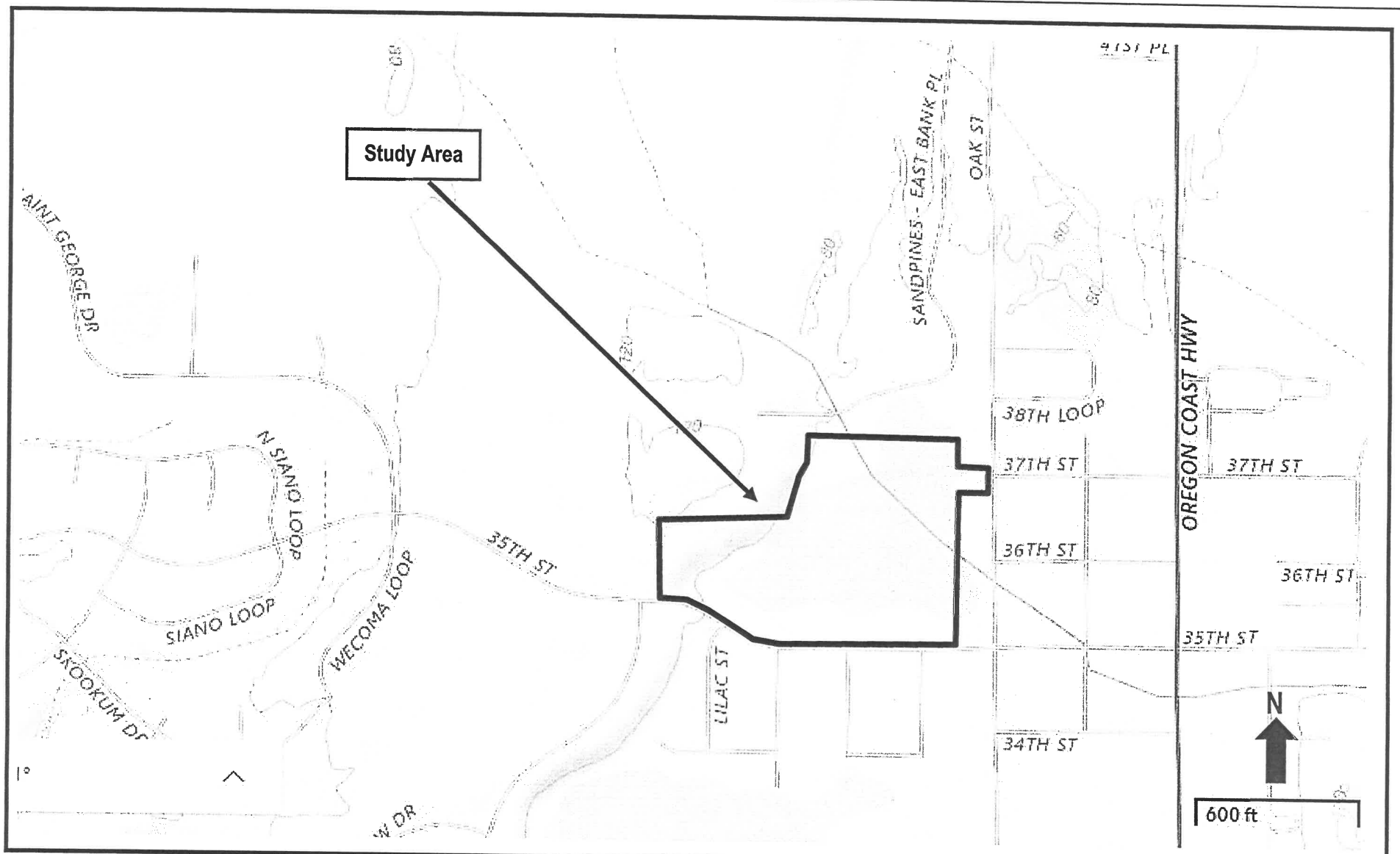
U.S. Department of Agriculture, 2021. *NRCS Web Soil Survey. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm*

Appendix A

Figures



Project #7127
4/15/2021

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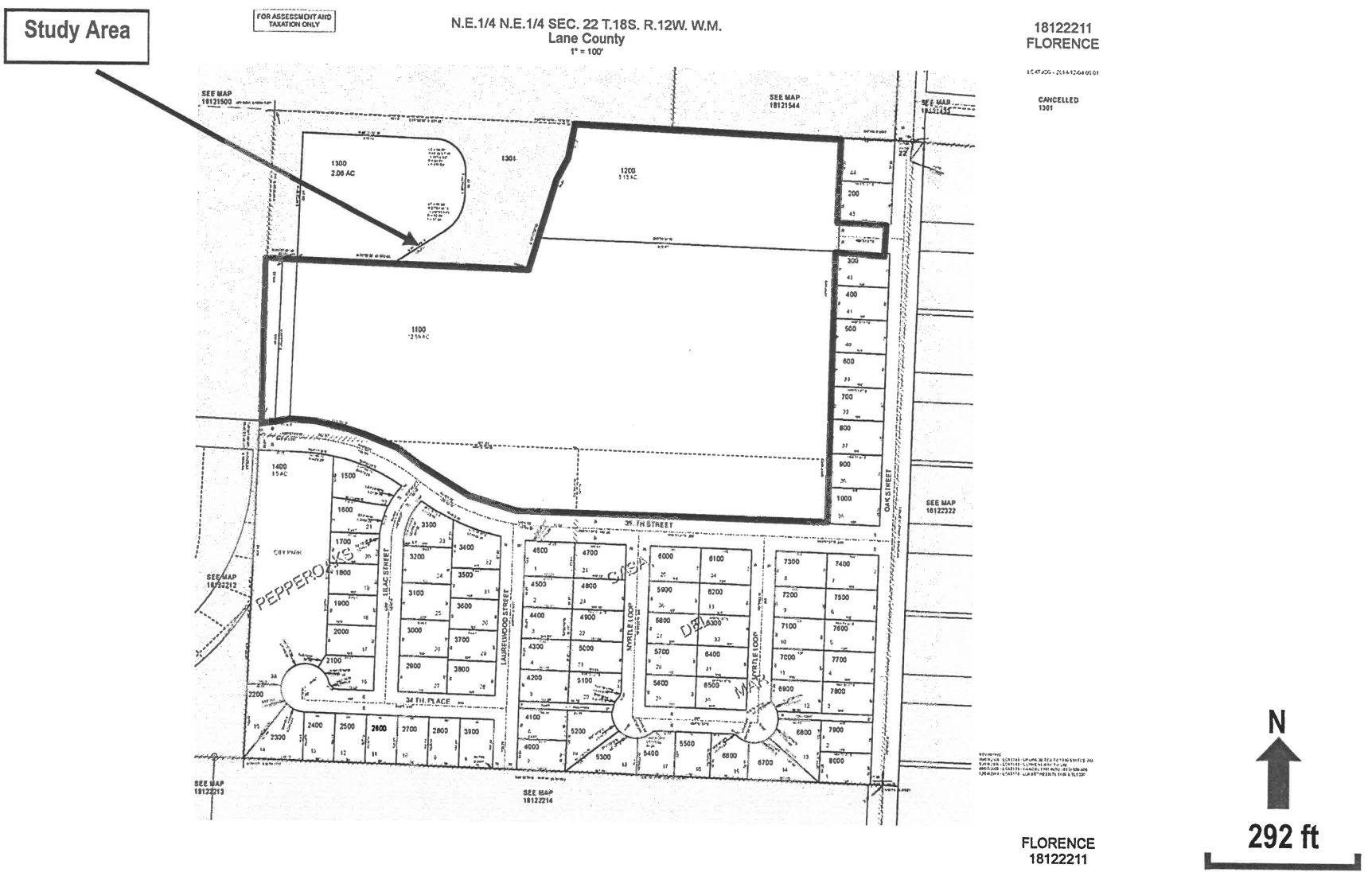
General Location and Topography
35th and Oak Street - Florence, Oregon
United States Geological Survey (USGS) Florence, Oregon 7.5 quadrangle, 2020
(viewer.nationalmap.gov/basic)

FIGURE
1



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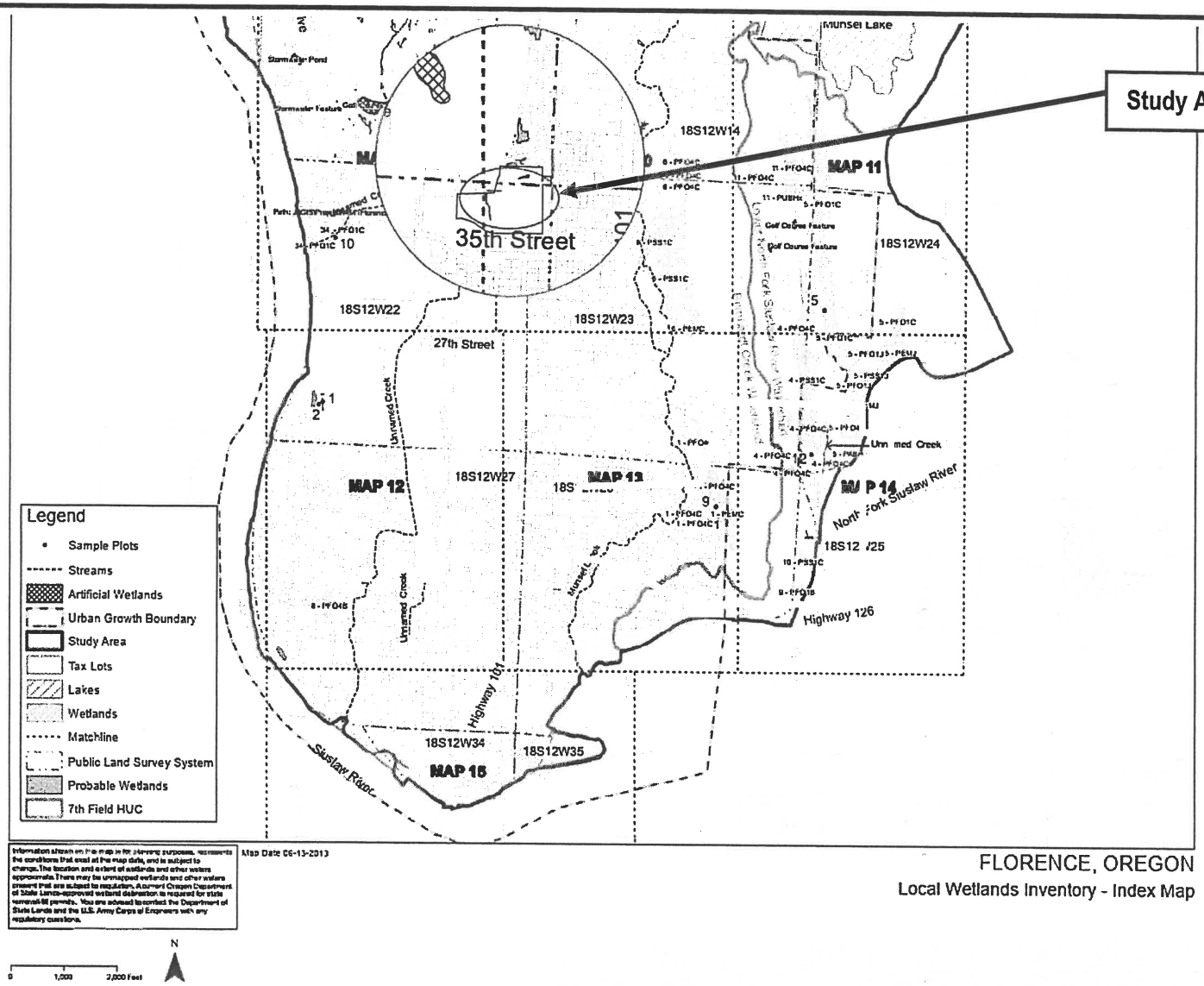
Tax Lot Map
35th and Oak Street - Florence, Oregon
The Oregon Map (ormap.net)

FIGURE
2



FLORENCE, OREGON
Local Wetlands Inventory - Index Map

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4/15/2021

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National Wetlands Inventory
35th and Oak Street - Florence, Oregon
United States Fish and Wildlife Service, Online Wetland Mapper V2, 2020

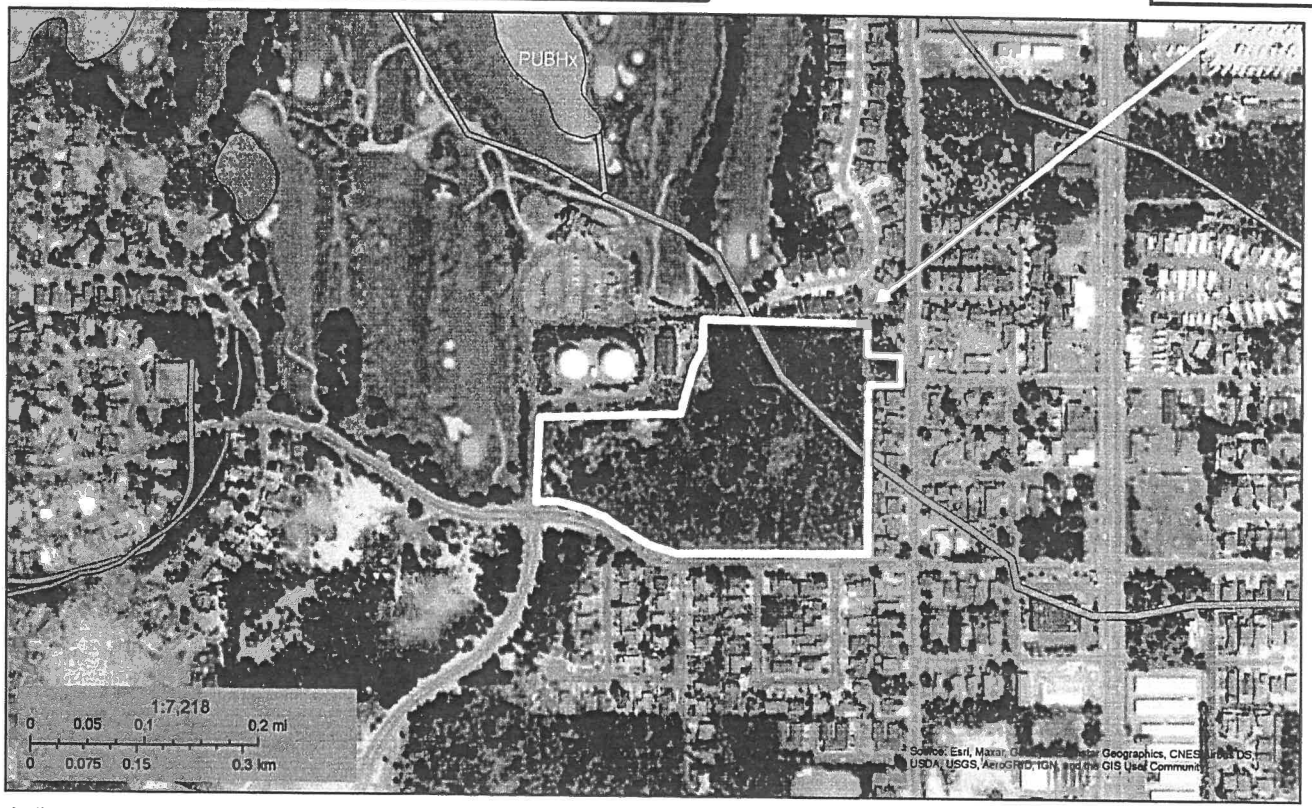
FIGURE
3A

U.S. Fish and Wildlife Service

National Wetlands Inventory

NWI - 7127

Study Area



April 14, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

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4/15/2021

Pacific Habitat Services, Inc.
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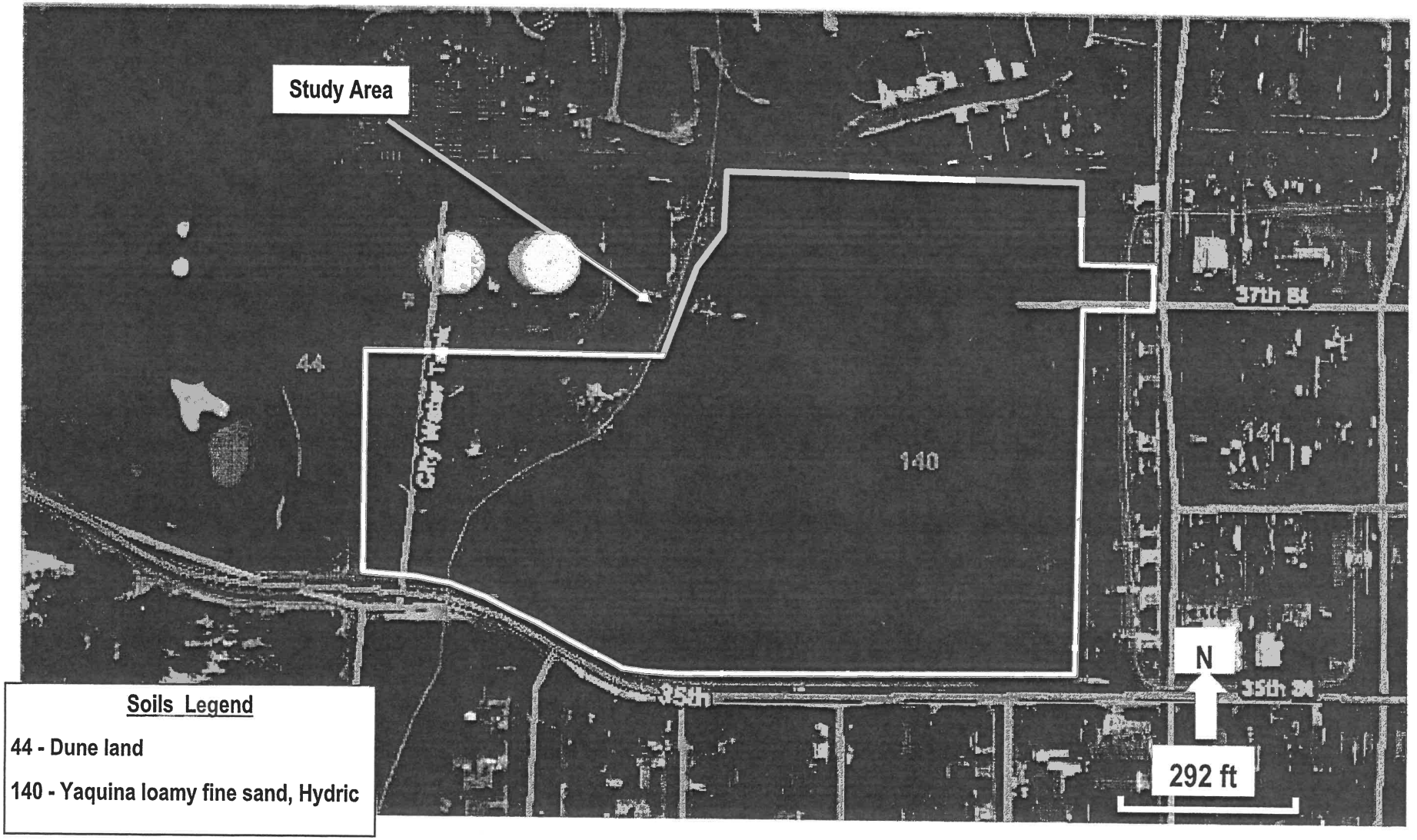
Wilsonville, OR 97070

National Wetlands Inventory
35th and Oak Street - Florence, Oregon
United States Fish and Wildlife Service, Online Wetland Mapper V2, 2020

FIGURE
3B



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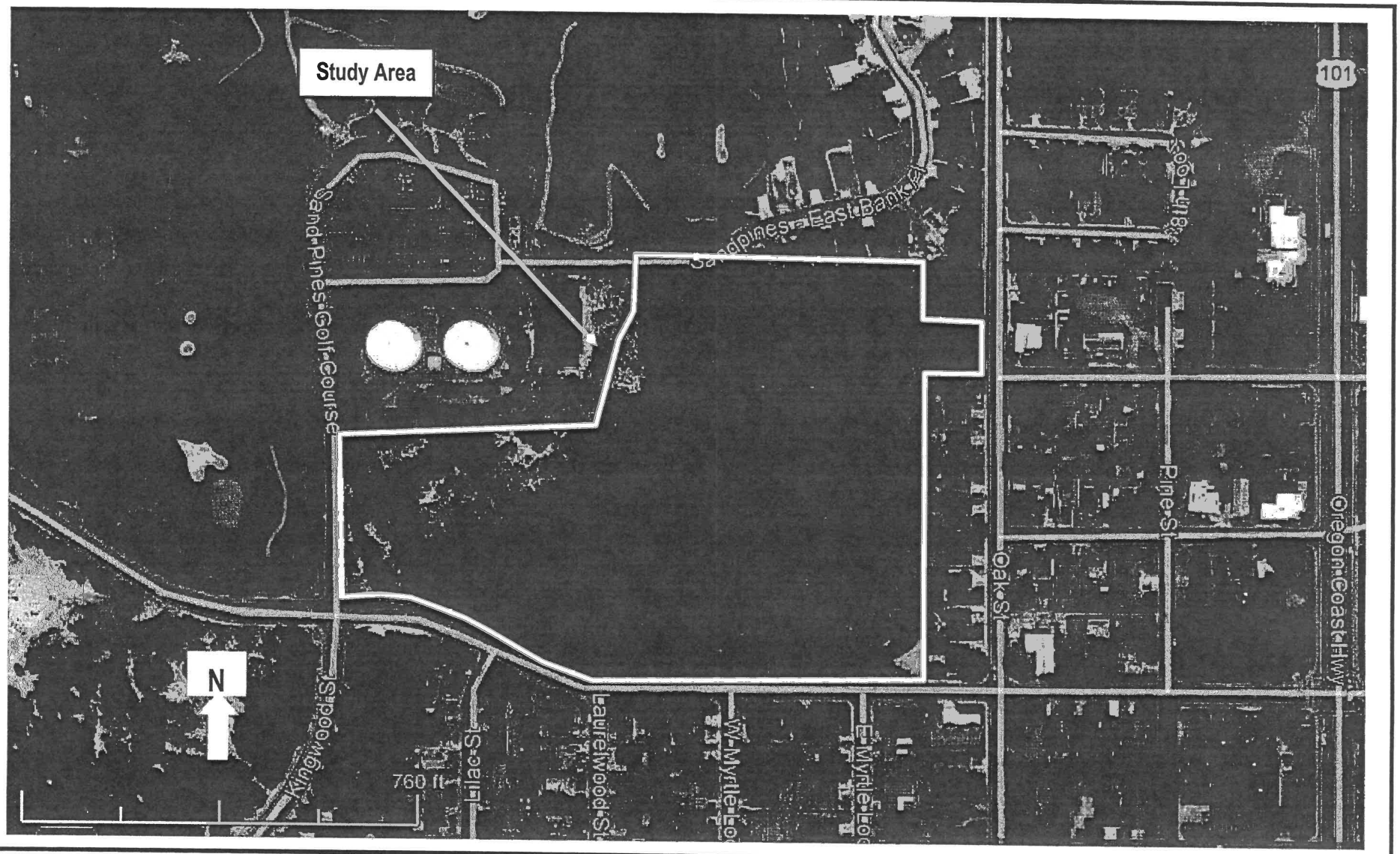
Soils
35th and Oak Street - Florence, Oregon
Natural Resources Conservation Services, Web Soil Survey, 2020
(websoilsurvey.sc.egov.usda.gov)

FIGURE
4



Project #7127
4/15/2021

PHS

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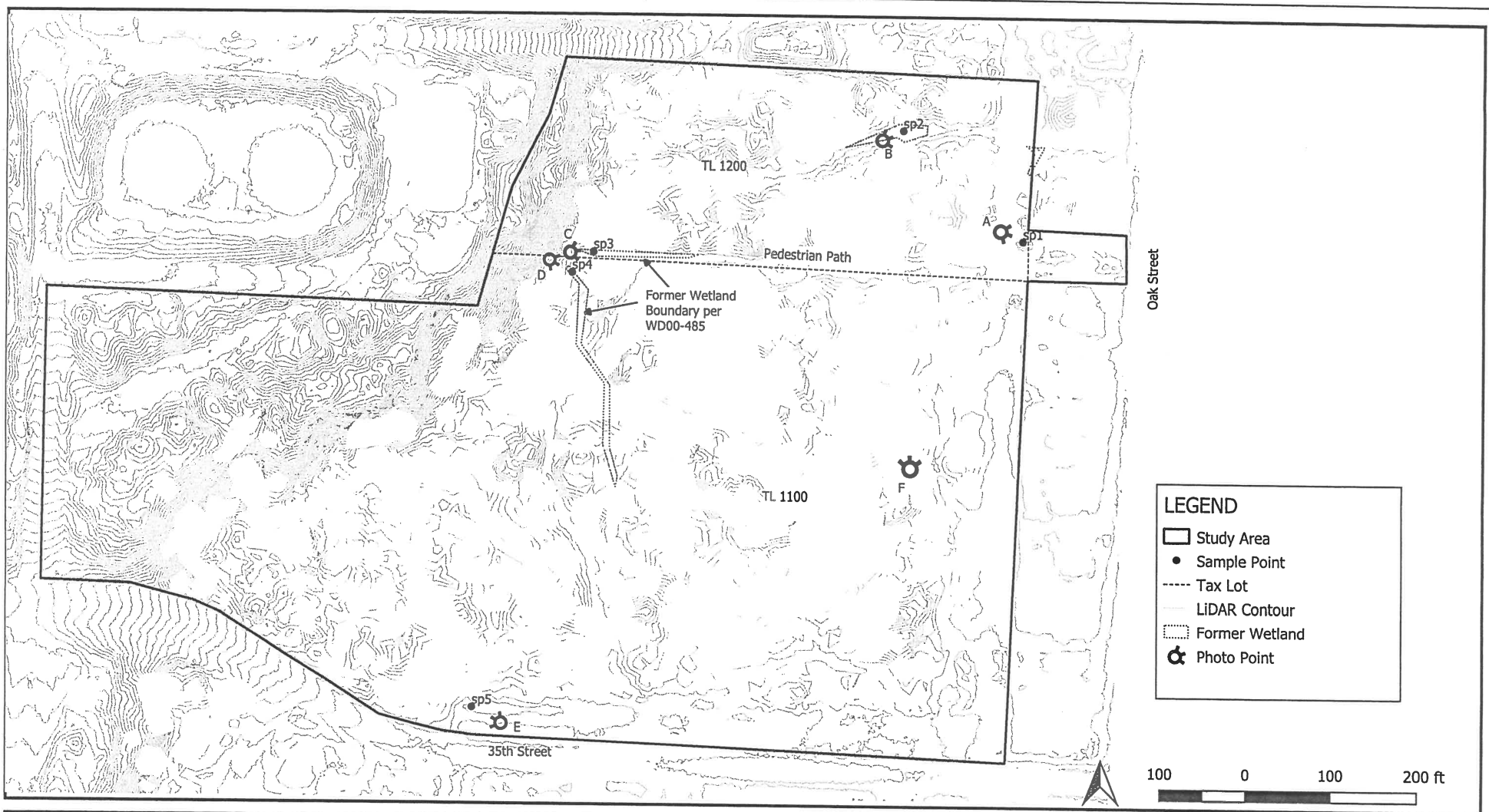
Aerial Photo
35th and Oak Street - Florence, Oregon
GoogleEarth, 2021

FIGURE
5



#7127
5/15/2021

PHS

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Survey conducted by PHS utilizing GPS: Sample point accuracy +/- 3 ft. LIDAR obtained from Oregon LIDAR Consortium, 2009: accuracy +/- 3 ft. Tax lots obtained from Oregon Comprehensive Plan Map: accuracy +/- 3 ft. Former Wetland Boundary obtained from PHS GIS data: accuracy +/- 3 ft.

Existing Conditions

35th and Oak Street- Florence, Oregon

FIGURE
6

Appendix B

Wetland Determination Data Sheets

PHS # 1

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

Project/Site: 35th and Oak St | City/County: Florence/Lane | Sampling Date: 4/8/2021

Applicant/Owner: Mike Johnson Construction | State: OR | Sampling Point: 1

Investigator(s): CM/JT | Section, Township, Range: Section 22, Township 18S, Range 12W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 2

Subregion (LRR): LRR A | Lat: 43.9986 | Long: -124.10450 | Datum: WGS84

Soil Map Unit Name: Yaquina loamy fine sand | NWI Classification: None

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? (Y/N) Y

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	Is Sampled Area within a Wetland?	Yes ____	No X
Hydric Soil Present?	Yes ____	No X			
Wetland Hydrology Present?	Yes ____	No X			

Remarks:
Precipitation levels are below normal in the last month, however secondary hydrology indicators and/or hydric soils and vegetation are well-defined in areas of prolonged saturation/inundation compared to adjacent and off-site wetland areas examined.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: 30)			
1 *Pinus contorta*	40	X	FAC
2			
3			
4			
	40	= Total Cover	
Sapling/Shrub Stratum (plot size: 15)			
1 *Gaultheria shallon*	30	X	FACU
2 *Vaccinium ovatum*	30	X	FACU
3 *Rhododendron macrophyllum*	30	X	FACU
4 *Cytisus scoparis*	20		(FAC)
5 *Rubus armeniacus*	10		FAC
	120	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Agrostis capillaris*	50	X	FAC
2 *Iris sp*	40	X	(FAC)
3			
4			
5			
6			
7			
8			
	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: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (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 = #DIV/0!

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]

____ 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 PHS # 1 Sampling Point: 1

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	Remarks
0-2	2.5Y 6/4	100					Sand	5% organic
2-13	2.5Y 5/6	100					Sand	

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

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:

Redox concentrations below 2 inches less than 1% at 10YR 4/6.

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 Plowed Soils (C6)
- _____ Stunted or Stressed Plants (D1) **(LRR A)**
- _____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- _____ Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- _____ Drainage Patterns (B10)
- _____ Dry-Season Water Table (C2)
- _____ Saturation Visible on Aerial Imagery (C9)
- X 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):	>13
Saturation Present? (includes capillary fringe)	Yes	_____	No X	Depth (inches):	>13

Wetland Hydrology Present?

Yes _____ **No** X

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

Remarks:

PHS # 1

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

Project/Site: 35th and Oak St | City/County: Florence/Lane | Sampling Date: 4/8/2021

Applicant/Owner: Mike Johnson Construction | State: OR | Sampling Point: 2

Investigator(s): CM/JT | Section, Township, Range: Section 22, Township 18S, Range 12W

Landform (hillslope, terrace, etc.): Slope | Local relief (concave, convex, none): Concave | Slope (%): 2

Subregion (LRR): LRR A | Lat: 43.9990 | Long: -124.10529 | Datum: WGS84

Soil Map Unit Name: Yaquina loamy fine sand | NWI Classification: None

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? (Y/N) Y

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	Is Sampled Area within a Wetland?	Yes ____ No X
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:
Precipitation levels are below normal in the last month, however secondary hydrology indicators and/or hydric soils and vegetation are well-defined in areas of prolonged saturation/inundation compared to adjacent and off-site wetland areas examined.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: 30)			
1 *Pinus contorta*	30	X	FAC
2			
3			
4			
	30	= Total Cover	
Sapling/Shrub Stratum (plot size: 15)			
1 *Gaultheria shallon*	60	X	FACU
2 *Vaccinium ovatum*	30	X	FACU
3 *Rhododendron macrophyllum*	20		FACU
4 *Pinus contorta*	10		FAC
5 *Morella californica*	5		FACW
	125	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Carex sp*	20	X	(FAC)
2			
3			
4			
5			
6			
7			
8			
	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: 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 = #DIV/0!

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]

____ 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

PHS # 1 Sampling Point: 2

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	Remarks
0-2	2.5Y 5/2	99	2.5Y 5/4	1	C	M	Sand	Fine
2-5	2.5Y 5/3	100					Sand	
5-9	2.5Y 5/4	10					Sand	mixed matrix
5-9	10YR 3/6	90					Sand	mixed matrix
9-20	2.5Y 6/4	20					Sand	mixed matrix
9-20	10YR 5/6	80					Sand	mixed matrix

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

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 Plowed Soils (C6)
- ____ Stunted or Stressed Plants (D1) **(LRR A)**
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Saturation Visible on Aerial Imagery (C9)
- X 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 ____ No X

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

Remarks:

PHS # 1

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

Project/Site: 35th and Oak St | City/County: Florence/Lane | Sampling Date: 4/8/2021

Applicant/Owner: Mike Johnson Construction | State: OR | Sampling Point: 3

Investigator(s): CM/JT | Section, Township, Range: Section 22, Township 18S, Range 12W

Landform (hillslope, terrace, etc.): Slope | Local relief (concave, convex, none): None | Slope (%): 2

Subregion (LRR): LRR A | Lat: 43.9986 | Long: -124.10645 | Datum: WGS84

Soil Map Unit Name: Yaquina loamy fine sand | NWI Classification: None

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? (Y/N) Y

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	Is Sampled Area within a Wetland?	Yes ____ No X
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:
Precipitation levels are below normal in the last month, however secondary hydrology indicators and/or hydric soils and vegetation are well-defined in areas of prolonged saturation/inundation compared to adjacent and off-site wetland areas examined.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: 30)			
1 *Pinus contorta*	50	X	FAC
2			
3			
4			
	50	= Total Cover	
Sapling/Shrub Stratum (plot size: 15)			
1 *Gaultheria shallon*	40	X	FACU
2 *Vaccinium ovatum*	40	X	FACU
3 *Rhododendron macrophyllum*	20		FACU
4 *Morella californica*	5		FACW
5			
	105	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Carex sp*	20	X	(FAC)
2			
3			
4			
5			
6			
7			
8			
	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: 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 = #DIV/0!

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]

____ 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

PHS # 1

Sampling Point: 3

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	Remarks
0-3	10YR 4/1	100					Sand	20% organic
3-11	10YR 6/2	98	10YR 4/6	2			Sand	20% organic; fine
11-14	2.5Y 5/3	80	10YR 4/6	20			Sand	20% organic; medium

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

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:

Although the hue and chroma meet a silt-loam criteria for depleted matrix, this sand is not representative of a depleted matrix, but rather a silica-rich sand composition with felsics and other light-colored sediment.

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 Plowed Soils (C6)
_____ Stunted or Stressed Plants (D1) **(LRR A)**
_____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

_____ Water stained Leaves (B9) **(MLRA1, 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):	>14
Saturation Present? (includes capillary fringe)	Yes	_____	No X	Depth (inches):	>14

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

PHS # 1

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

Project/Site: 35th and Oak St | City/County: Florence/Lane | Sampling Date: 4/8/2021

Applicant/Owner: Mike Johnson Construction | State: OR | Sampling Point: 4

Investigator(s): CM/JT | Section, Township, Range: Section 22, Township 18S, Rnage 12W

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): Concave | Slope (%): 2

Subregion (LRR): LRR A | Lat: 43.9985 | Long: -124.10641 | Datum: WGS84

Soil Map Unit Name: Yaquina loamy fine sand | NWI Classification: None

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? (Y/N) Y

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	Is Sampled Area within a Wetland?	Yes ____ No X
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:
Precipitation levels are below normal in the last month, however secondary hydrology indicators and/or hydric soils and vegetation are well-defined in areas of prolonged saturation/inundation compared to adjacent and off-site wetland areas examined.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: 30)			
1 *Pinus contorta*	60	X	FAC
2			
3			
4			
	60	= Total Cover	
Sapling/Shrub Stratum (plot size: 15)			
1 *Vaccinium ovatum*	60	X	FACU
2 *Gaultheria shallon*	40	X	FACU
3 *Morella californica*	20		FACW
4			
5			
	120	= Total Cover	
Herb Stratum (plot size: ____)			
1			
2			
3			
4			
5			
6			
7			
8			
	0	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 100

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 = #DIV/0!

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]

____ 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

PHS # 1 Sampling Point: 4

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1						Sand	High organics
2-8	2.5Y 6/2						Sand	
8-14	2.5Y 6/2	60	2.5Y 6/8	40	C	M	Sand	Fine

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

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:

Sand color does not equal reduced matrix.

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 Plowed Soils (C6)
- ____ Stunted or Stressed Plants (D1) **(LRR A)**
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Saturation Visible on Aerial Imagery (C9)
- X 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):	>14	**Wetland Hydrology Present?**
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches):	>14	**Yes** ____ **No** X

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

Remarks:

PHS # 1

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

Project/Site: 35th and Oak St | City/County: Florence/Lane | Sampling Date: 4/8/2021

Applicant/Owner: Mike Johnson Construction | State: OR | Sampling Point: 5

Investigator(s): CM/JT | Section, Township, Range: Section 22, Township 18S, Range 12W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 2

Subregion (LRR): LRR A | Lat: 43.9971 | Long: -124.10678 | Datum: WGS84

Soil Map Unit Name: Yaquina loamy fine sand | NWI Classification: None

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? (Y/N) Y

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	Is Sampled Area within a Wetland?	Yes ____ No X
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:
Precipitation levels are below normal in the last month, however secondary hydrology indicators and/or hydric soils and vegetation are well-defined in areas of prolonged saturation/inundation compared to adjacent and off-site wetland areas examined.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ____)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Agrostis capillaris*	50	X	FAC
2 *Hypochaeris radicata*	30	X	FACU
3 *Taraxacum officinale*	10		FACU
4			
5			
6			
7			
8			
	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: 2 (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 = #DIV/0!

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]
____ 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:
Moss covers bare ground. Only vegetation within the depressional area was recorded.

SOIL

PHS # 1 Sampling Point: 5

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 4/1	100					Sand	~30% organic
4-7	10YR 5/3	99	10YR 4/6	1	C	M	Sand	Fine, ~30% organic
7-13	2.5Y 5/6	95	10YR 4/6	10	C	M	Sand	Fine, ~30% organic

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

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:

Sand color does not equal reduced matrix.

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 Plowed Soils (C6)
- ____ Stunted or Stressed Plants (D1) **(LRR A)**
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Saturation Visible on Aerial Imagery (C9)
- X 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):	>13	**Wetland Hydrology Present?**
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches):	>13	**Yes ____ No X**

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

Remarks:

Appendix C

Site Photos

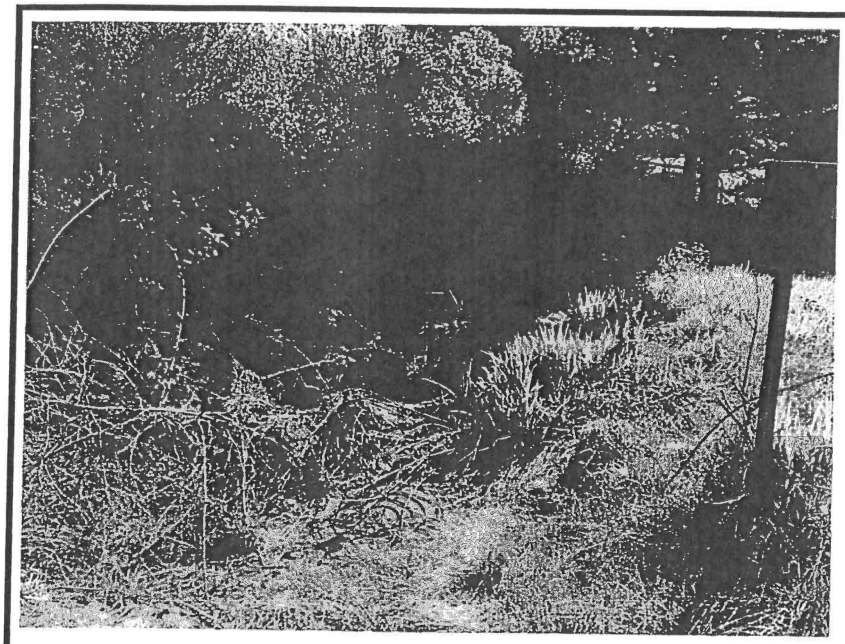


Photo A:

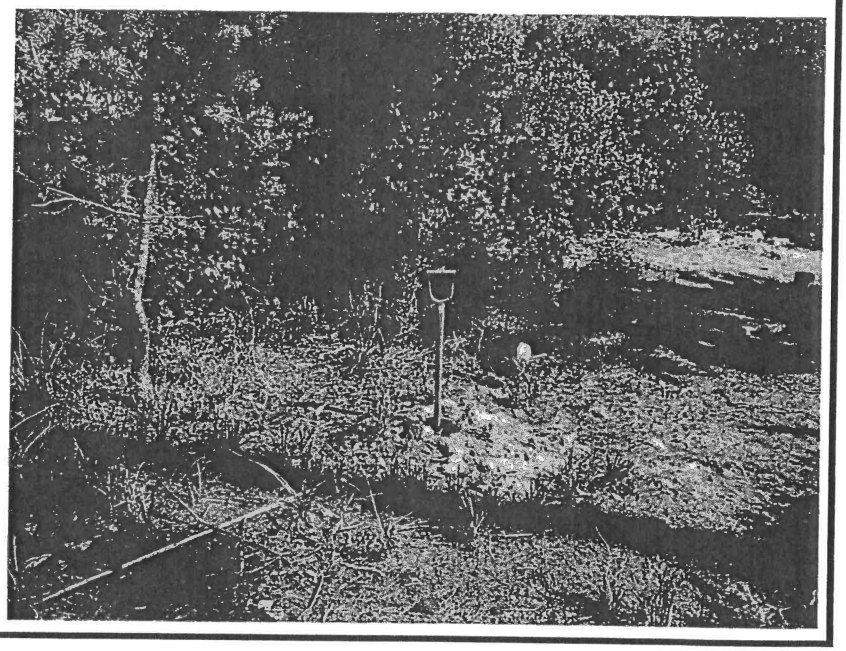
Looking southeast at sample point 1 in an upland depression near a manhole.

Photo date: April 8, 2021

Photo B:

Looking northeast at sample point 2.

Photo date: April 8, 2021



Project #7127
5/15/2021

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photo documentation

35th and Oak Street—Florence, Oregon

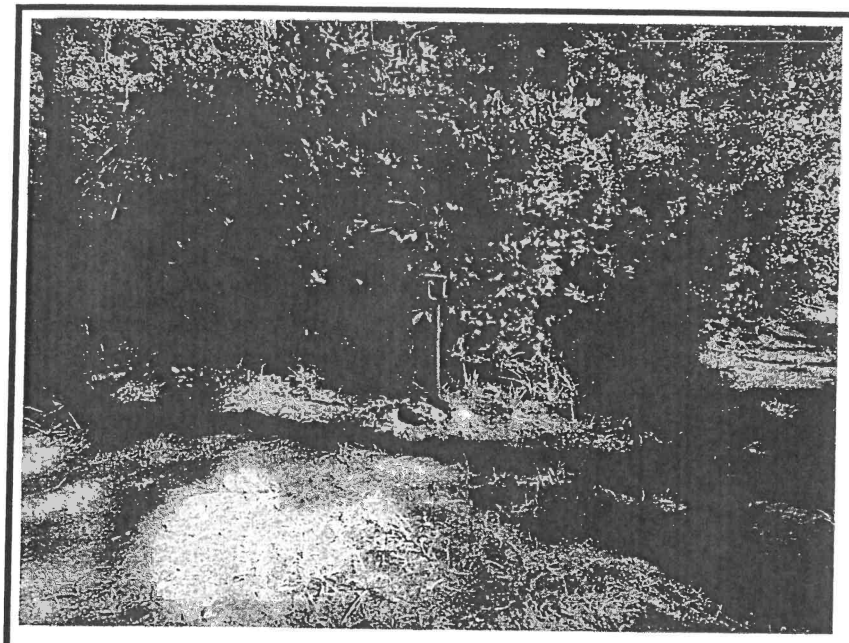


Photo C:

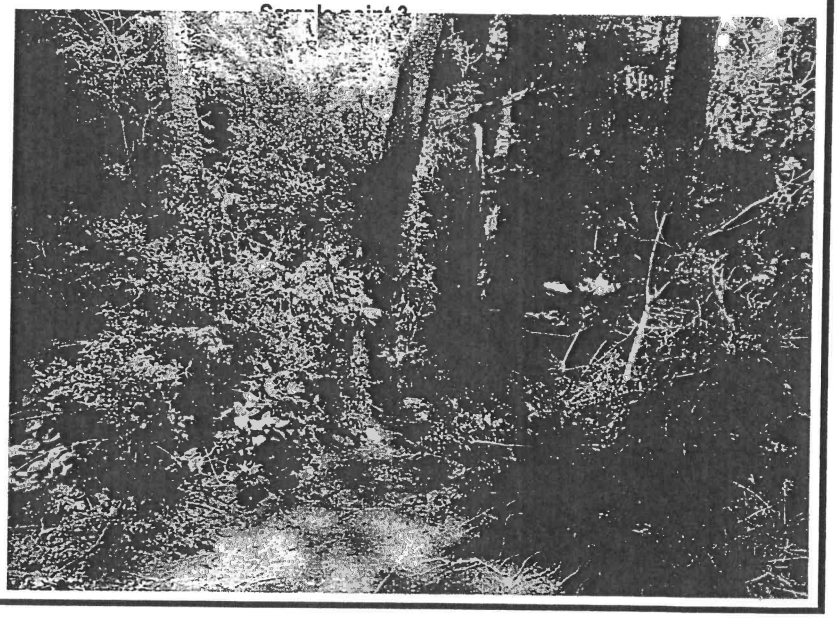
Looking northeast at sample point 3 along the pedestrian path.

Photo date: April 8, 2021

Photo D:

Looking southeast at sample point 4.

Photo date: April 8, 2021



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5/15/2021

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9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photo documentation

35th and Oak Street—Florence, Oregon

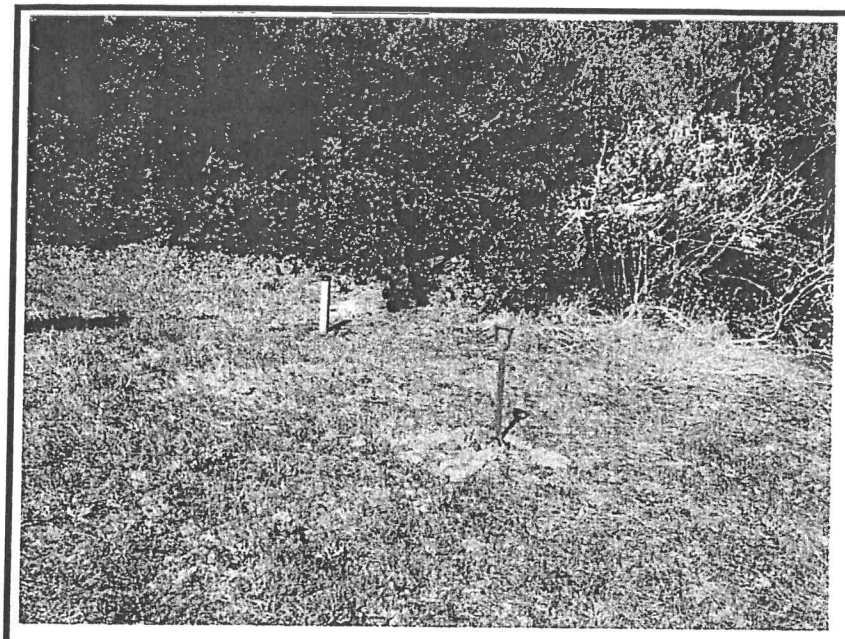

Photo E:

Looking northwest at sample point 5.

Photo date: April 8, 2021

Photo F:

Looking north at a typical footpath in the forested upland.

Photo date: April 8, 2021

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Appendix D

Wetland Definitions, Methodology

WATERS OF THE STATE AND WETLAND DEFINITION AND CRITERIA

Regulatory Jurisdiction

Wetlands and water resources in Oregon are regulated by the Oregon Department of State Lands (DSL) under the Removal-Fill Law (ORS 196.800-196.990) and by the U.S. Army Corps of Engineers (COE) through Section 404 of the Clean Water Act.

The primary source documents for wetland delineations within Oregon is the *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (U.S. Army Corps of Engineers, 2010), which are required by both DSL and COE.

Waters of This State and Wetland Definition

Waters of This State are defined as "all natural waterways, all tidal and non-tidal bays, intermittent streams, constantly flowing streams, lakes, wetlands, that portion of the Pacific Ocean that is in the boundaries of this state, all other navigable and non-navigable bodies of water in this state and those portions of the ocean shore ..." (DSL, 2009).

Wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (DSL 2009).

Wetland Criteria

Based on the above definition, three major factors characterize a wetland: hydrology, substrate, and biota.

Wetland Hydrology

Wetland hydrology is related to duration of saturation, frequency of saturation, and critical depth of saturation. The 1987 manual defines wetland hydrology as inundation or saturation within a major portion of the root zone (usually above 12 inches), typically for at least 12.5% of the growing season. The wetland hydrology criterion can be met, however, if saturation within the major portion of the root zone is present for only 5% of the growing season, depending on other evidence.

The growing season is defined as the portion of the year when soil temperatures at 12.0 inches below the soil surface are higher than biological zero (41 degrees Fahrenheit, 5 degrees Celsius), but also allows approximation from frost-free days, based on air temperature. The growing season for any given site or location is determined from US Natural Resources Conservation Service, (formerly Soil Conservation Service) data and information.

Wetland hydrologic indicators include the following: visual observation of inundation or saturation, watermarks, drift lines, sediment deposits, and/or oxidized rhizospheres with living roots. Oxidized rhizospheres are defined as yellowish-red zones around the roots and rhizomes of some plants that grow in frequently saturated soils. Other indicators of hydrology, including algal mats or crust, iron deposits, surface soil cracks, sparsely vegetated concave surface, salt crust, aquatic invertebrates, hydrogen sulfide odor, reduced iron, iron reduction in tilled soils, and stunted or stressed plants can also be used to determine the presence of wetland hydrology.

Wetland Substrate (Soils)

Most wetlands are characterized by hydric soils. Hydric soils are those that are ponded, flooded, or saturated for long enough during the growing season to develop anaerobic conditions. Periodic saturation of soils causes alternation of reduced and oxidized conditions, which leads to the formation of redoximorphic features (gleying and mottling). Mineral hydric soils will be either gleyed or will have bright mottles and/or low matrix chroma. The redoximorphic feature known as gley is a result of greatly reduced soil conditions, which result in a characteristic grayish, bluish or greenish soil color. The term mottling is used to describe areas of contrasting color within a soil matrix. The soil matrix is the portion of the soil layer that has the predominant color. Soils that have brightly colored mottles and a low matrix chroma are indicative of a fluctuating water table.

Hydric soil indicators include organic content of greater than 50% by volume, and/or presence of redoximorphic features and dark soil matrix, as determined by the use of a Munsell Soil Color Chart. This chart establishes the chroma, value and hue of soils based on comparison with color chips. Mineral hydric soil must meet one of the 16 definitions for hydric soil indicators, or be classified as a "problem soil" in the Regional Supplement.

Wetland Biota (Vegetation)

Wetland biota is defined as hydrophytic vegetation. A hydrophyte is a plant species that is capable of growing in substrates that are periodically deficient in oxygen as a result of saturated soil conditions. The U.S. Fish and Wildlife Service, in the *National List of Plant Species that Occur in Wetlands*, has established five basic groups of vegetation based on their frequency of occurrence in wetlands. These categories, referred to as the "wetland indicator status", are as follows: obligate wetland plants (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and obligate upland (UPL). Table 1 gives a definition of the plant indicator codes.

Table 1. Description of Wetland Plant Indicator Status Codes

Indicator Code	Status
OBL	Obligate wetland. Plants that always occur in standing water or in saturated soils.
FACW	Facultative wetland. Plants that nearly always occur in areas of prolonged flooding or require standing water or saturated soils but may, on rare occasions, occur in non-wetlands.
FAC	Facultative. Plants that occur in a variety of habitats, including wetland and mesic to xeric non-wetland habitats but commonly occur in standing water or saturated soils.
FACU	Facultative upland. Plants that typically occur in xeric or mesic non-wetland habitats but may frequently occur in standing water or saturated soils.
UPL	Obligate upland. Plants that rarely occur in water or saturated soils.

Observations of hydrology, soils, and vegetation, were made using the "Routine On-site" delineation method as defined in the 1987 manual and the Regional Supplement for areas that were not currently in agricultural production. One-foot diameter soil pits were excavated to 20 inches and soil profiles were examined for hydric soil and wetland hydrology field indicators. In addition, a visual absolute-cover estimate of the dominant species of the plant community was performed using soil pit locations as a center of reference. Dominant plant species are based on estimates of absolute cover for herbaceous, and shrub species within a 5-foot radius of the sample point, and basal area cover for tree and woody vine species within a 30 foot radius of the sample point. Plant species in each vegetative layer, which are estimated at less than 20% of the total cover, are not considered dominant. The wetland indicator status is then used to determine if there is an overall dominance (greater than 50%) of wetland or upland plant species. If less than 50% of the dominant species are hydrophytic, then the prevalence index may be used to determine if the subdominant species are hydrophytic. If the prevalence index is less than or equal to three, hydrophytic vegetation criterion is met.

During data collection, the soil profiles were examined for hydric soil and wetland hydrology field indicators. Plant species and cover were recorded. Data was recorded on standard data sheets, which contain the information specified in the 1987 Corps Manual and the Regional Supplement.