Oregon
Kate Brown, Governor

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 986-5200
FAX (503) 378-4844
www.oregon.gov/dsl

January 4, 2021

West Linn Wilsonville School District
Attn: Remo Douglas, Capital Construction Program Manager
2755 SW Borland Road
Tualatin, OR 97062

Re: WD # 2020-0622 **Approved**
Wetland Delineation Report for the Dollar Street Site, West Linn, Clackamas County; T2S R1E S34DC TLs 900 and 1001, and S34C TL600

Dear Mr. Douglas:

The Department of State Lands has reviewed the wetland determination report prepared by Pacific Habitat Services, Inc. for the site referenced above. Based upon the information presented in the report, we concur that there are no jurisdictional wetlands or other waters of the state within the study area, as indicated on the attached Figure 6 and 6A. Please replace all copies of the preliminary wetland maps with these final Department-approved maps.

Within the study area, one ephemeral stream was identified. Normally, a state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in wetlands or below the ordinary high-water line (OHWL) of the waterway (or the 2-year recurrence interval flood elevation if OHWL cannot be determined). However, ephemeral streams are non-jurisdictional per OAR 141-085-0515(3); therefore, it is not subject to these state permit requirements.

This concurrence is based on information provided to the agency and is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well. Federal or local permit requirements may apply as well. The U.S. Army Corps of Engineers will determine jurisdiction under the Clean Water Act, which may require submittal of a complete Wetland Delineation Report.

The jurisdictional determination is valid for five years from the date of this letter unless new information necessitates a revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity or

complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. If you have any questions, please contact Chris Stevenson, the Jurisdiction Coordinator for Clackamas County at (503) 986-5246.

Sincerely,

Peter Ryan, SPWS
Aquatic Resource Specialist

Enclosures

ec: Mike See, Pacific Habitat Services, Inc.
West Linn Planning Department (Maps enclosed for updating LWI)
Trey Fraley, Corps of Engineers
Michael De Blasi, DSL

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: **Remo Douglas, Capital Construction Program Manager** **West Linn Wilsonville School District** 2755 SW Borland Road Tualatin, OR 97062	Business phone # 503-799-6891 Mobile phone # (optional) E-mail: douglasr@wlwv.k12.or.us
☐ Authorized Legal Agent, Name and Address:	Business phone # Mobile phone # E-mail:

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: REMO DOUGLAS Signature:
Date: 11-6-20 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: Dollar St. Site West Linn	Latitude: 45.34842103, Longitude: -122.67227190
Proposed Use: School Campus	Tax Map # 21E34C TL600 and 21E34DC TLs 900 and 1001
Project Street Address (or other descriptive location): 840 Dollar St. City: West Linn County: Clackamas	Township 2S Range 1E Section 34 QQ Tax Lot(s) Waterway: River Mile: NWI Quad(s): Canby OR

Wetland Delineation Information

Wetland Consultant Name, Firm and Address: **Pacific Habitat Services, Inc.** **Attn: Mike See** **9450 SW Commerce Circle, Suite 180** **Wilsonville, OR 97070**	Phone # **503-570-0800** Mobile phone # E-mail: ms@pacifichabitat.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: Michael See Date: 11/9/2020

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

Wetland/Waters Present? ☒ Yes ☐ No	Study Area size: 21.81 acres 0.01ac/591sf Total Wetland Acreage:

Check Box Below if Applicable:	**Fees:**
☐ R-F permit application submitted	☐ Fee payment submitted $
☐ 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 #
Does LWI, if any, show wetland or waters on parcel?	☒	☐	

For Office Use Only

DSL Reviewer: CS	Fee Paid Date: ___/___/___	DSL WD # 2020-0622
Date Delineation Received: 11 / 17 / 20	DSL Project #	DSL Site #
Scanned: ☒ Final Scan: ☐	DSL WN #	DSL App. #

Electronic Submittal

Wetland Delineation for the Dollar Street School Project in West Linn, Oregon

Prepared for

West Linn-Wilsonville School District
c/o Remo Douglas, Capital Construction Program Manager
2755 SW Borland Road
Tualatin, OR 97062

Prepared by

Michael See, Joe Thompson
John van Staveren
Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, Oregon 97070
(503) 570-0800
PHS Project Number: 6960

November 9, 2020

TABLE OF CONTENTS

I. INTRODUCTION

Pacific Habitat Services, Inc. (PHS) conducted a wetland delineation for the Dollar Street School Site located at 840 Dollar Street and North of Willamette Falls Drive, West Linn, Oregon (Township 2 South, Range 1 East Section 34, tax lots 600; and Section 34DC tax lots 900, 1001). This report presents the results of PHS's delineation of the property. Figures, including maps depicting the locations of waters within the study area, are in Appendix A. Data sheets documenting study area conditions are provided in Appendix B. Ground-level photos 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 21.81-acre study area is located at 840 Dollar Street, and 945 Dollar Street in West Linn, Oregon, and is north of Willamette Falls Drive. The study area consists primarily of second growth forest with some areas dominated by herbaceous or shrub species, and generally slopes from northeast to southwest. Land use adjacent to the study area is primarily residential with developed athletic fields located to the south. The Tualatin River flows near the northwest corner of the site to the south and east. There is also a depression/ravine/swale near the eastern boundary of the study area that generally slopes north to south. Elevations range between approximately 208 and 104 feet according to survey data provided by Compass Land Surveyors.

The Natural Resources Conservation Services (NRCS) mapped soils within the study area include McBee variant loam, Newberg fine sandy loam, Willamette silt loam, wet, 0 to 3 percent slopes, Woodburn silt loam, 8 to 15 percent slopes. None of the mapped soils within the study area are classified as hydric.

Vegetation within the study area is largely forested. An area in the north-central portion of the site was previously planted with Douglas fir (*Pseudotsuga menziesii*, FACU) trees. The understory in this area consists of sword fern (*Polystichum munitum*, FACU), Himalayan blackberry (*Rubus armeniacus*, FAC), and red elderberry (*Sambucus racemosa*, FACU). The remainder of the site has been allowed to reforest through natural succession; species in these areas are generally a mix of deciduous trees with scattered Douglas fir. Dominant species include bigleaf maple (*Acer macrophyllum*, FACU), red alder (*Alnus rubra*, FAC), black walnut (*Juglans nigra*, UPL), and English hawthorn (*Crataegus monogyna*, FAC). Wetland vegetation was generally uncommon within the study area, areas that were dominated by wetland vegetation were lacking hydric soils and wetland hydrology; therefore, no wetlands were identified during the field investigation.

B. Site Alterations

An examination of historical aerial photos shows that the study area was previously used for agricultural activities in addition to being a residence. A large portion of the eastern parcel was reforested between 1960 and 1970, and much of the remainder of the study area reverted to forest between 1981 and the 1990s. A stormwater pipe discharges into the ravine within the eastern portion

of the site, the ravine flows into a catch basin immediately offsite to the south. A sanitary sewer line is also located in the ravine. A water quality basin is located immediately to the west of the study area boundary, this was constructed around 2010 and is likely associated with replacement of the bridge on Willamette Falls Drive.

C. Precipitation Data and Analysis

PHS conducted the wetland delineation and data collection on June 11, 2020. Table 1 compares the average monthly precipitation at the Oregon City WETS station (approximately three miles east of the study area) to the observed monthly precipitation for the three months prior to the June field work.

Table 1: Comparison of average precipitation from 1995 to 2019 recorded at the Oregon City WETS station to observed precipitation prior to the June 2020 wetland delineation field work.

Month	Average Precipitation[1]	30% Chance Will Have		Observed Precipitation[1]	Percent of Normal
		Less Than Average[1]	More Than Average[1]		
March	5.81	3.87	6.96	2.76	48%
April	3.8	2.71	4.49	1.42	37%
May	2.19	1.21	2.67	3.04	139%

[1] WETS Table for the Oregon City WETS station

As shown in Table 1, observed precipitation was below the average and normal range during March and April, and above the average and normal range for May. Observed precipitation was 1.32 inches in the two weeks prior to the June 11 field investigation. No precipitation was recorded on June 11, 2020. A total accumulation of 28.34 inches was recorded for the water year at the time of the field investigation. This is approximately 70% of normal. PHS considered hydrological conditions to be below normal for the purposes of the wetland delineation field work, and thus extra care was taken to evaluate hydrologic conditions along wetland boundaries.

D. Methods

As stated above, PHS conducted a stream and wetland delineation along with data collection on June 11, 2020. PHS delineated the study area using 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*, which characterize wetlands based on the presence of wetland hydrology, hydric soils, and hydrophytic vegetation in accordance with the routine onsite determination method. At the time of the delineation, due to recent precipitation levels, climatic conditions were not considered typical and best professional judgment was utilized to evaluate hydrology, soils and vegetation throughout the site. Although wetland indicators were observed individually, no areas exhibited the presence of all three wetland indicators: wetland hydrology, hydric soils, and hydrophytic vegetation, thus no wetlands were identified within the study area.

The ordinary high water (OHW) of onsite streams were delineated based on guidelines outlined in the Department of State Lands *Removal Fill Guide* and the U.S. Army Corps of Engineers Regulatory Guidance Letter 05-05: *Field Indicators of OHW*. Evidence of OHW included scour within the stream where sediment along the channel wall was clear of any vegetation, changes in sediment characteristics and vegetation, and exposed roots.

E. Description of all Wetlands and Streams

PHS identified the potentially jurisdictional limits of one stream/channel within the study area. No wetlands were found within the study area. A description of the stream/channel is provided below.

Stream 1

Stream 1 (0.01 acres/ 591 sf) is an ephemeral channel in the southeastern portion of the study area. The stream originates from a stormwater pipe within the northeast portion of this area. Channel development within Stream 1 is poor and loses definition and then infiltrates into the ground. Areas immediately downstream of Stream 1 are well vegetated and do not exhibit a defined streambed, streambanks, or an ordinary high water mark. Sample points 2 and 3 characterizes these conditions. The channel does not connect to any downstream waters. Stream 1 has a Cowardin Classification of riverine ephemeral (R6), and a Hydrogeomorphic (HGM) Classification of Riverine Flow-Through (RFT). Sample point1 characterizes the hydrology, vegetation, and soils within Stream 1.

F. Comparison to Local Wetland Inventory

The City of West Linn Local Wetland Inventory (LWI) does not depict any wetlands or probable wetlands within the study area boundary. The LWI Map does show a potentially jurisdictional drainage within the eastern portion of the study area. This feature roughly corresponds to Stream 1 described above.

G. Mapping Method

PHS flagged the limits of the stream/channel within the study area (includes entire tax lots referenced above) with blue flagging and the sample points with green flagging. Compass Land Surveyors then surveyed the delineated boundaries and sample points, both have an accuracy of sub-centimeter.

H. Additional Information

None

I. Results and Conclusions

PHS delineated the OHW line of an ephemeral channel within the study area that totals 0.01 acre. Section E above describes the Cowardin and HGM Class of the channel.

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

Adamus, P.R. and D. Field. 2001 *Guidebook for Hydrogeomorphic (HGM)-based Assessment of Oregon Wetland and Riparian Sites. Willamette Valley Ecoregion, Riverine Impounding and Slopes/Flats Subclasses*. Oregon Department of State Lands, Salem, OR.

GoogleEarth Map, 2020. Aerial photo, May 8, 2019.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *State of Oregon 2016 Plant List. The National Wetland Plant List*: *2016 Wetland Ratings.* Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X http://rsgisias.crrel.usace.army.mil/nwpl_static/data/DOC/lists_2016/States/pdf/OR_2016v1.pdf

Munsell Color, 2010. *Munsell Soil Color Charts*. Grand Rapids, Michigan. 2009 Year Revised, 2010 Production.

NRCS Weather data for the Oregon City, OR WETS Station. Source: (http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/fotg/)

ORMAP tax maps, 2020. *http://www.ormap.net/*

Removal-Fill Guide, April 2019*: A Guide to the Removal-Fill Permit Process*. Oregon Department of State Lands, Salem, OR. http://www.oregon.gov/dsl/Pages/default.aspx

US Army Corps of Engineers, Environmental Laboratory, 1987. *Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1*.

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).*

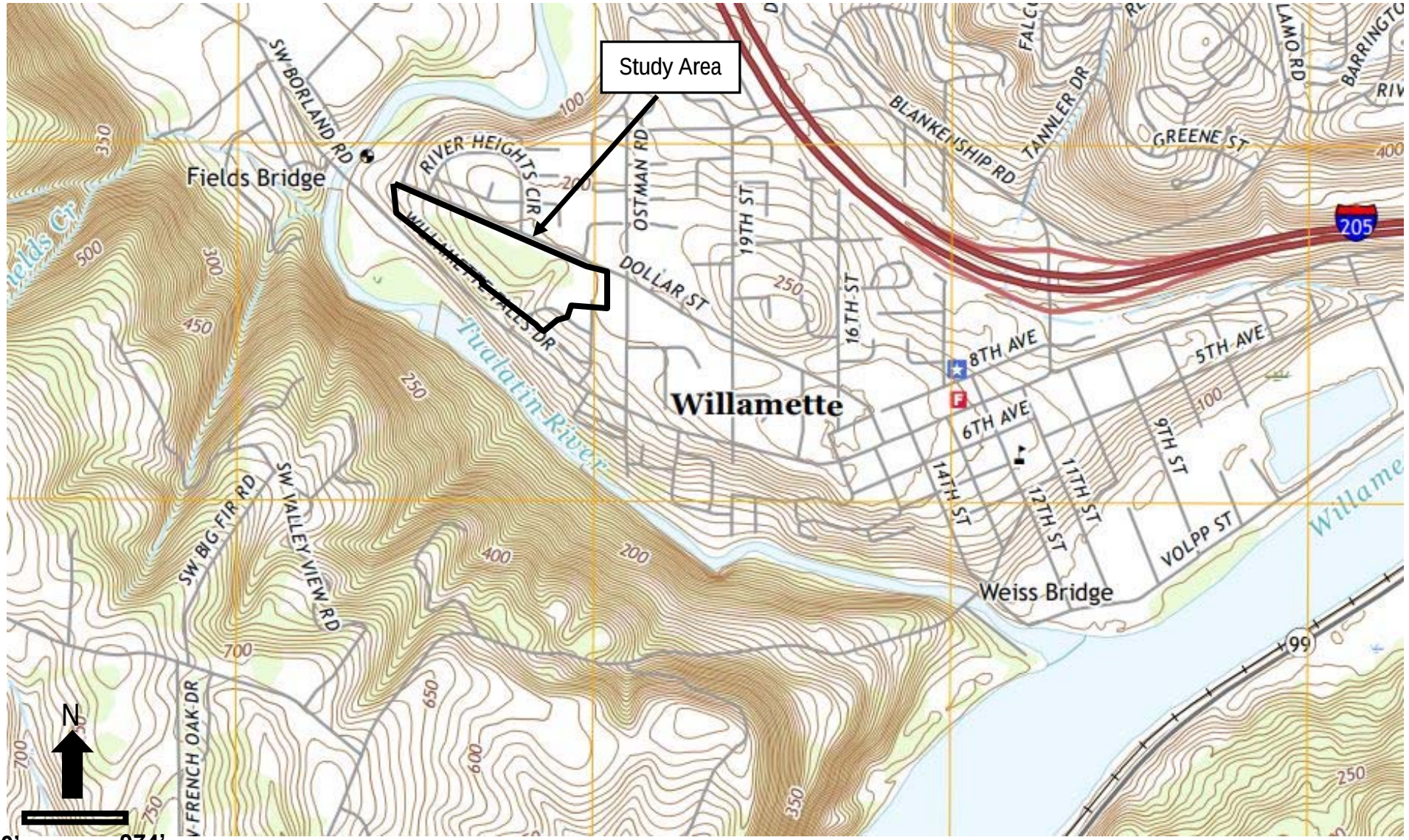
US Department of Agriculture, Natural Resource Conservation Services, 2020. *NRCS Web Soil Survey; Clackamas County*.

US Geological Survey, 2020. *Canby, Oregon. 7.5-minute Quadrangle Map.*

Winterbrook Planning, 2003. *City of West Linn Wetland, Riparian, and Wildlife Habitat Inventory, 2004*

Appendix A

Figures

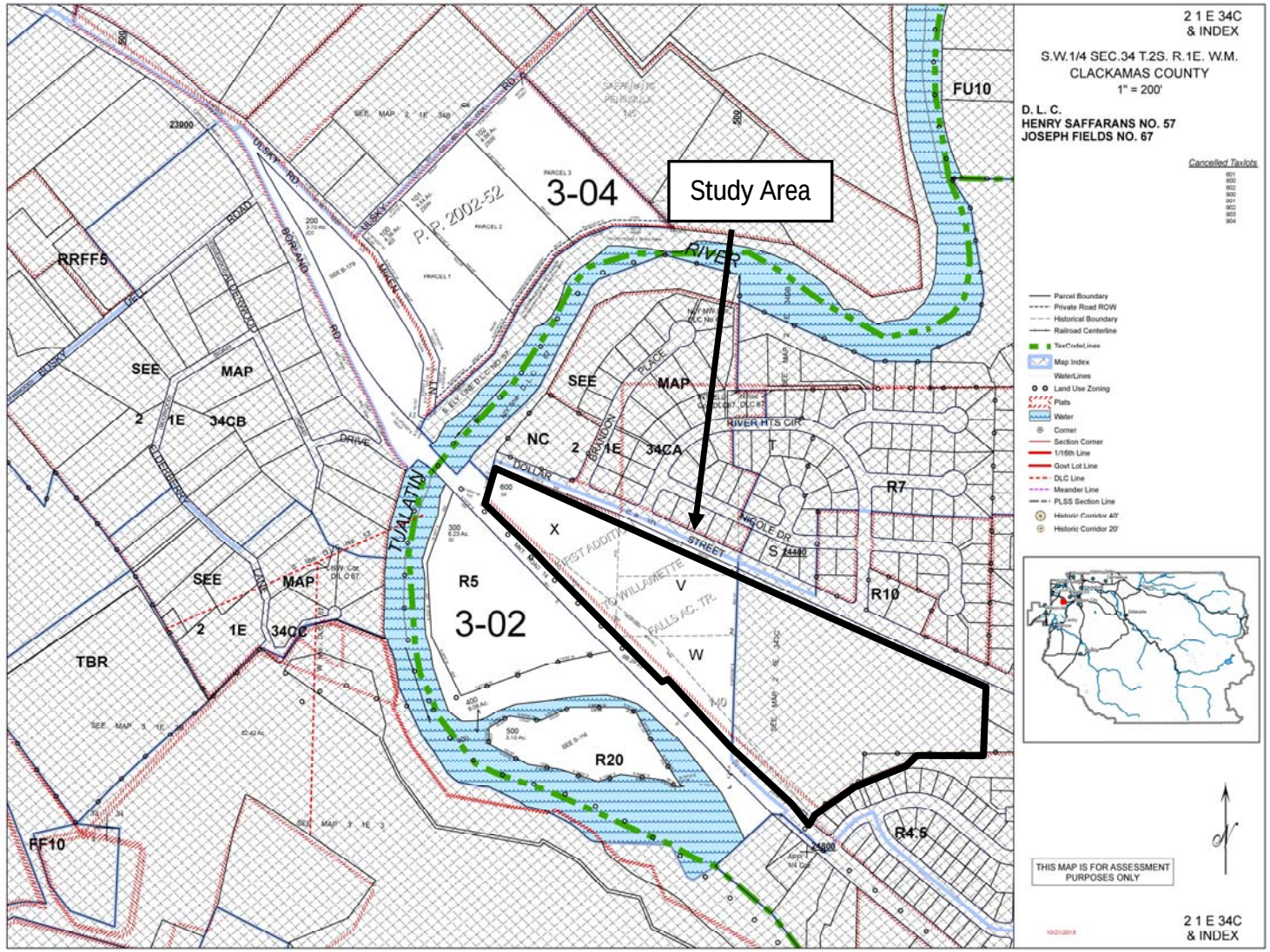


#6960
7/29/2020

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

General Location and Topography
Dollar Street West Linn School Siting - West Linn, Oregon
United States Geological Survey (USGS) Canby, Oregon 7.5 quadrangle, 2020
(viewer.nationalmap.gov/basic)

FIGURE
1



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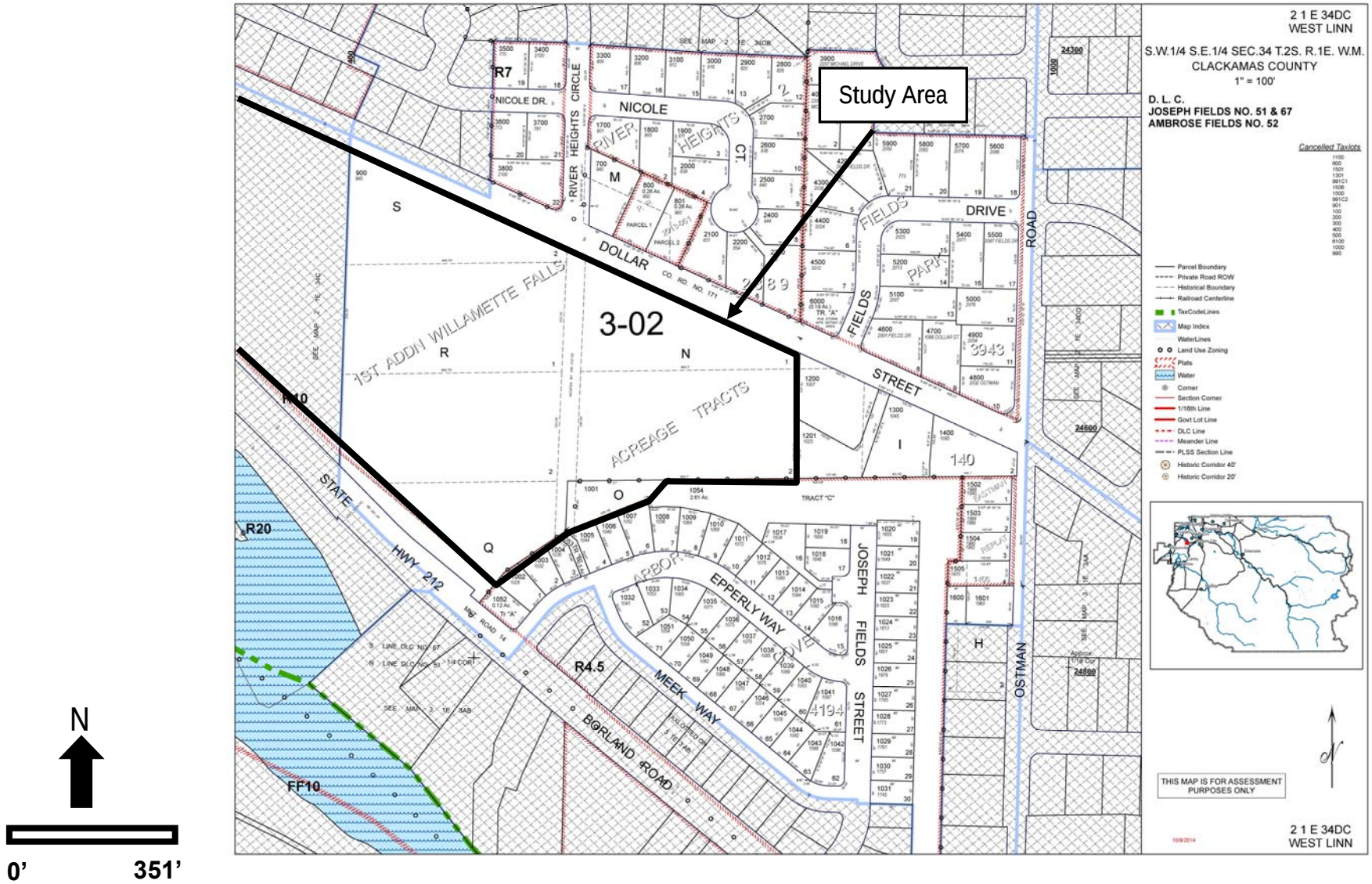
Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Tax Lot Map
Dollar Street West Linn School Siting - West Linn, Oregon
The Oregon Map (ormap.net)

FIGURE
2A

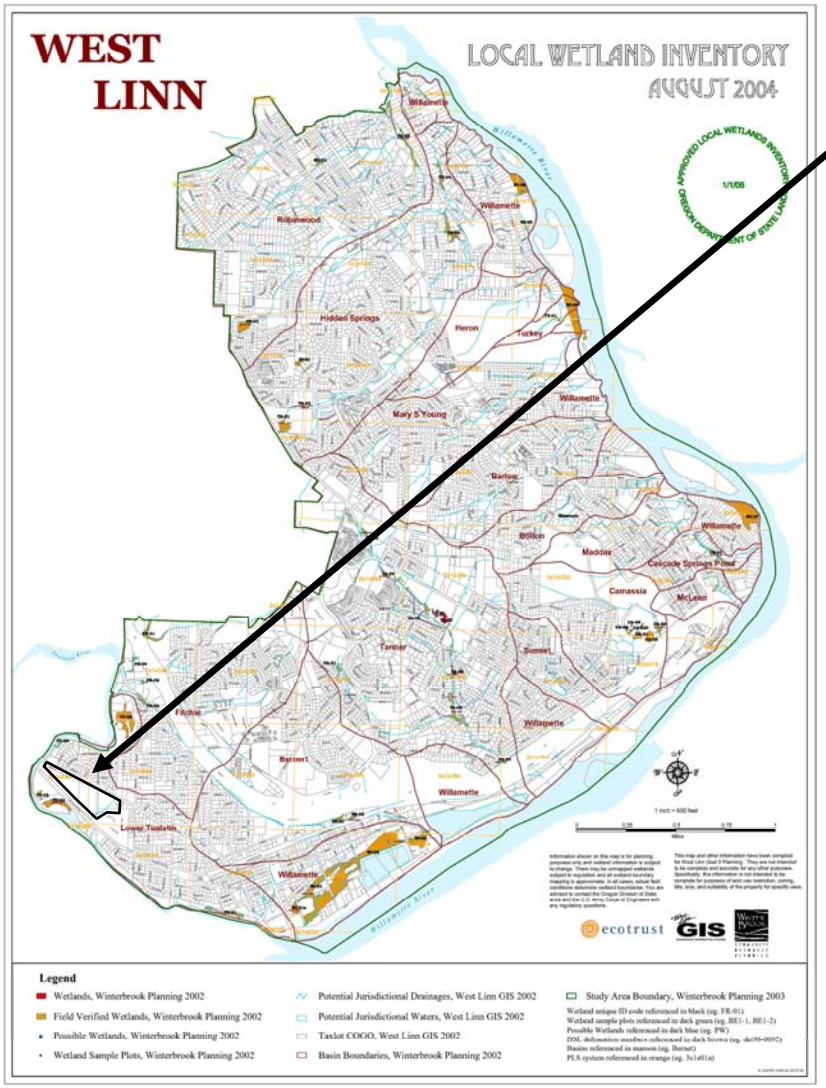


#6960
7/29/2020

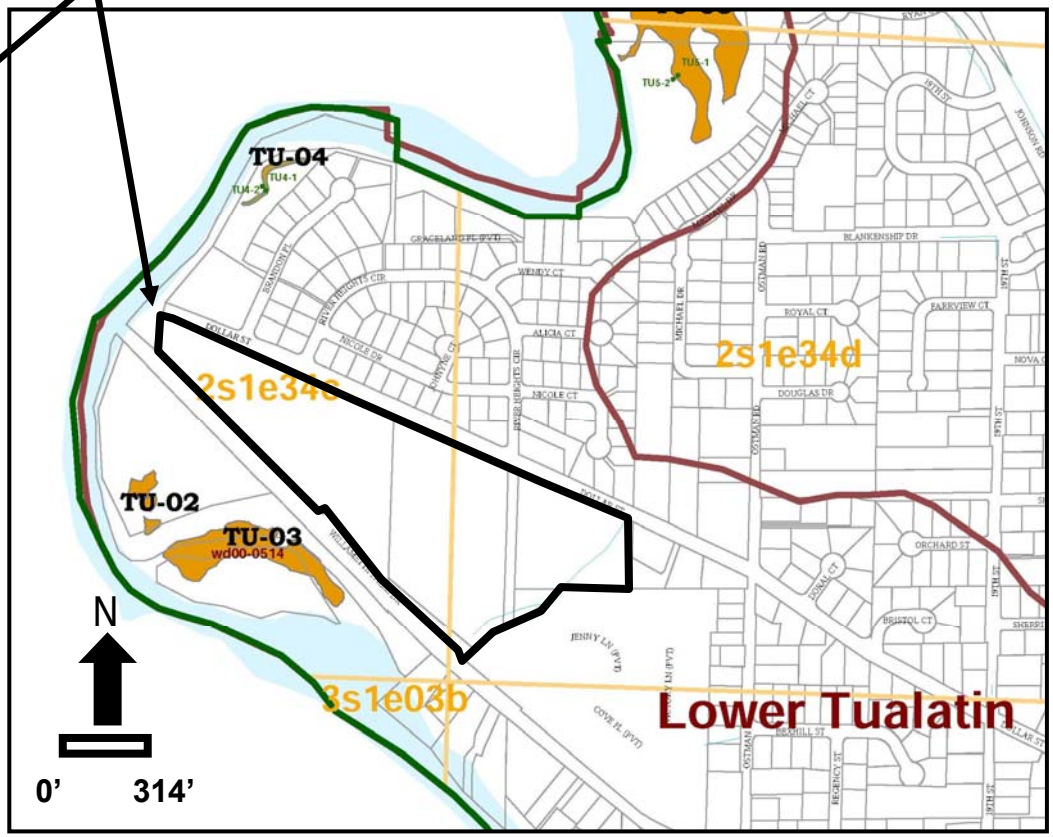
Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Tax Lot Map
Dollar Street West Linn School Siting - West Linn, Oregon
The Oregon Map (ormap.net)

FIGURE
2B



Study Area



#6960
7/29/2020

PHS

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

LWI
Dollar Street West Linn School Siting - West Linn, Oregon
Winterbrook Planning, 2005

FIGURE
3

Project #6960
7/29/2020

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

Soils
Dollar Street West Linn School Siting - West Linn, Oregon
Natural Resources Conservation Services, Web Soil Survey, 2020
(websoilsurvey.sc.egov.usda.gov)

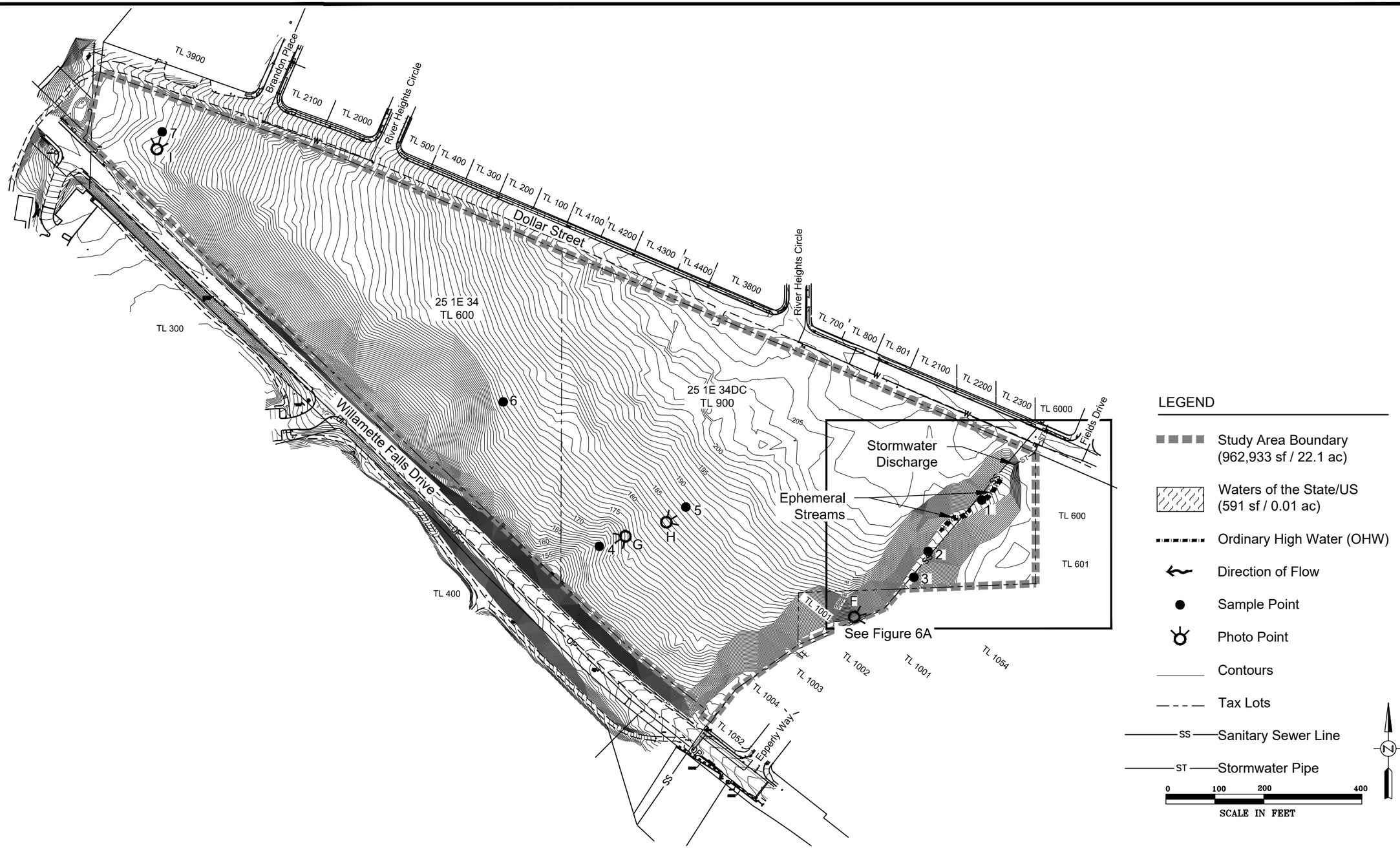
FIGURE
4

Project #6960
7/29/2020

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

Aerial Photo
Dollar Street West Linn School Siting - West Linn, Oregon
GoogleEarth, 2020

FIGURE
5



Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180 Wilsonville, Oregon 97070
Phone: (503) 570-0800 Fax (503) 570-0855

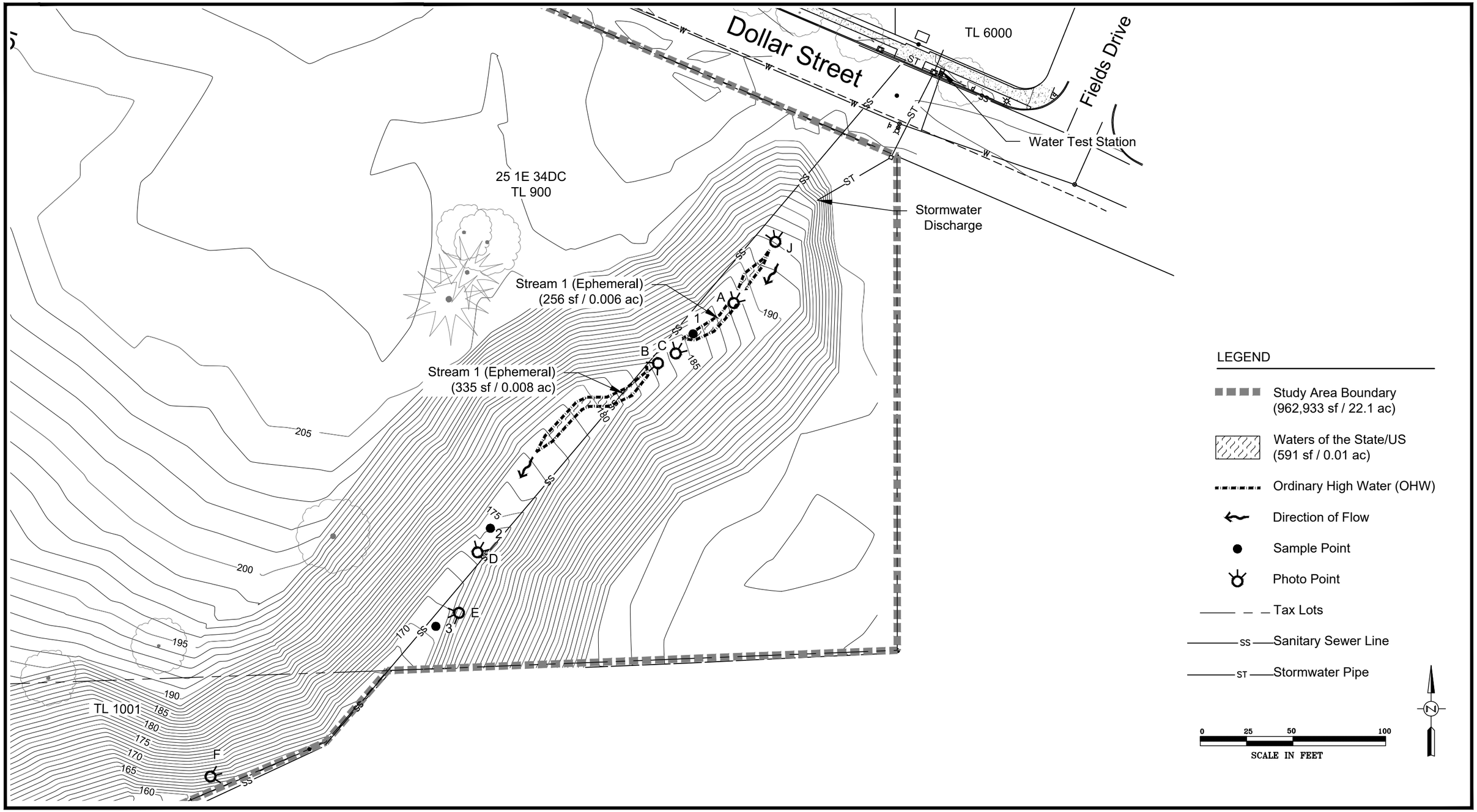
Survey includes Study Area boundary, provided by Compass Land Surveying. Survey and Sample point accuracy is sub-centimeter.

DSL WD # 2020-0622
Approval Issued 1/4/2021
Approval Expires 1/4/2026

Wetland Delineation
Dollar Street - West Linn, Oregon

FIGURE 6

9-17-2020



PHS
Pacific Habitat Services,Inc.
9450 SW Commerce Circle, Suite 180 Wilsonville, Oregon 97070
Phone: (503) 570-0800 Fax (503) 570-0855

Survey including Study Area boundary, provided by Compass Land Surveying. Survey and Sample point accuracy is sub-centimeter.

DSL WD # 2020-0622
Approval Issued 1/4/2021
Approval Expires 1/4/2026

Wetland Delineation
Dollar Street - West Linn, Oregon

FIGURE
6A

9-17-2020

Appendix B

Wetland Delineation Data Sheets

PHS # 6960

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

Project/Site: **Dollar Street** City/County: **West Linn/Clackamas** Sampling Date: **6/11/2020**

Applicant/Owner: **West Linn/Wilsonville Schools** State: **OR** Sampling Point: **1**

Investigator(s): **JT/MS** Section, Township, Range: **Township 2 South, Range 1 East, Section 34 and 34DC**

Landform (hillslope, terrace, etc.:) **Swale** Local relief (concave, convex, none): **Concave** Slope (%): **5**

Subregion (LRR): **LRR A** Lat: **45.3478** Long: **-122.6693** Datum: **WSG85**

Soil Map Unit Name: **Willamette Silt Loam, Wet, 0-3% Slopes** 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? (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	X	No		

Remarks:
Precipitation was below the average and normal ranges for two of the three months prior to field work; therefore hydrological conditions were considered below normal for the delineation.

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: 15)			
1 ***Rubus armeniacus***	35	X	FAC
2 ***Rubus ursinus***	10	X	FACU
3 ***Prunus avium***	5		FACU
4			
5			
	50	= Total Cover	
Herb Stratum (plot size: 5)			
1 ***Geranium robertianum***	5	X	FACU
2 ***Convolvulus equitans***	1		FACU
3			
4			
5			
6			
7			
8			
	6	= Total Cover	
Woody Vine Stratum (plot size: 15)			
1 ***Hedera helix***	35	X	FACU
2			
	35	= Total Cover	

% Bare Ground in Herb Stratum ____

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 = **#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 # **6960** 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
0-9	**10YR 3/3**	**100**					**Silt Loam**	
9-16+	**10YR 3/3**	**100**					**Silty Clay Loam**	

[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)
- **X** Sediment Deposits (B2)
- **X** 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)**
- **X** 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):	**>16**
Saturation Present? (includes capillary fringe)	Yes	___	No **X**	Depth (inches):	**>16**

Wetland Hydrology Present?

Yes **X** **No** ___

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

Remarks:

Area shows evidence of surface flows, sediment and drift deposits present. Does not meet wetland vegetation or soils. Was determined to be ephemeral channel.

PHS # 6960

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

Project/Site: **Dollar Street** City/County: **West Linn/Clackamas** Sampling Date: **6/11/2020**

Applicant/Owner: **West Linn/Wilsonville Schools** State: **OR** Sampling Point: **2**

Investigator(s): **JT/MS** Section, Township, Range: **Township 2 South, Range 1 East, Section 34 and 34DC**

Landform (hillslope, terrace, etc.:) **Swale** Local relief (concave, convex, none): **Concave** Slope (%): **5**

Subregion (LRR): **LRR A** Lat: **45.3475** Long: **-122.6698** Datum: **WSG85**

Soil Map Unit Name: **Willamette Silt Loam, Wet, 0-3% Slopes** 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? (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 was below the average and normal ranges for two of the three months prior to field work; therefore hydrological conditions were considered below normal for the delineation.

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: **15**)			
1 ***Ilex aquifolium***	**40**	**X**	**FACU**
2 ***Oemleria cerasiformis***	**30**	**X**	**FACU**
3 ***Rubus armeniacus***	**10**		**FAC**
4 ***Corylus cornuta***	**5**		**FACU**
5 ***Rubus ursinus***	**5**		**FACU**
	90	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Geranium robertianum***	**20**	**X**	**FACU**
2 ***Hydrophyllum tenuipes***	**10**	**X**	**FAC**
3			
4			
5			
6			
7			
8			
	30	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **70**

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 = **#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 # 6960 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
0-16	**7.5YR 3/3**	**100**					**Silt Loam**	

[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)
- 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):	**>16**
Saturation Present? (includes capillary fringe)	Yes		No **X**	Depth (inches):	**>16**

Wetland Hydrology Present?

Yes _____ **No X**

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

Remarks:

Area probably gets some surface flows during rainstorms, but no indicators present.

PHS # 6960

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

Project/Site: **Dollar Street** City/County: **West Linn/Clackamas** Sampling Date: **6/11/2020**

Applicant/Owner: **West Linn/Wilsonville Schools** State: **OR** Sampling Point: **3**

Investigator(s): **JT/MS** Section, Township, Range: **Township 2 South, Range 1 East, Section 34 and 34DC**

Landform (hillslope, terrace, etc.:) **Swale** Local relief (concave, convex, none): **Concave** Slope (%): **5**

Subregion (LRR): **LRR A** Lat: **45.34738932,** Long: **-122.6699** Datum: **WSG85**

Soil Map Unit Name: **Willamette Silt Loam, Wet, 0-3% Slopes** 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? (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 was below the average and normal ranges for two of the three months prior to field work; therefore hydrological conditions were considered below normal for the delineation.

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: **15**)			
1 ***Corylus cornuta***	**35**	**X**	**FACU**
2 ***Rubus armeniacus***	**15**	**X**	**FAC**
3			
4			
5			
	50	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Pteridium aquilinum***	**25**	**X**	**FACU**
2 ***Polystichum munitum***	**25**	**X**	**FACU**
3 ***Carex leptopoda***	**20**	**X**	**FAC**
4 ***Geranium robertianum***	**5**		**FACU**
5			
6			
7			
8			
	75	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

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

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

Percent of Dominant Species That are OBL, FACW, or FAC: **40%** (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 # **6960** 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
0-16	**10YR 3/3**	**100**					**Silt Loam**	

[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):	**>16**	
Saturation Present? (includes capillary fringe)	Yes ___	No **X**	Depth (inches):	**>16**	

Wetland Hydrology Present?

Yes ___ **No X**

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

Remarks:

Data collected at the lowest elevation within the swale onsite.

PHS # 6960

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

Project/Site: **Dollar Street** City/County: **West Linn/Clackamas** Sampling Date: **6/11/2020**

Applicant/Owner: **West Linn/Wilsonville Schools** State: **OR** Sampling Point: **4**

Investigator(s): **JT/MS** Section, Township, Range: **Township 2 South, Range 1 East, Section 34 and 34DC**

Landform (hillslope, terrace, etc.:) **Swale** Local relief (concave, convex, none): **Concave** Slope (%): **5**

Subregion (LRR): **LRR A** Lat: **45.3478** Long: **-122.6729** Datum: **WSG85**

Soil Map Unit Name: **Woodburn Silt Loam 8-15% Slopes** 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? (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 was below the average and normal ranges for two of the three months prior to field work; therefore hydrological conditions were considered below normal for the delineation.

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: **15**)				
1	***Rubus armeniacus***	**60**	**X**	**FAC**
2	***Corylus cornuta***	**20**	**X**	**FACU**
3				
4				
5				
		80	= Total Cover	
Herb Stratum (plot size: **5**)				
1	***Phalaris arundinacea***	**80**	**X**	**FACW**
2	***Callystegia sp***	**20**	**X**	**(FAC)**
3	***Blechnum spicant***	**5**		**FAC**
4				
5				
6				
7				
8				
		105	= 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: **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 # **6960** Sampling Point: **4**

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
0-16	**10YR 3/2**	**100**					**Silty Clay Loam**	

[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)
- 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):	**>16**
Saturation Present? (includes capillary fringe)	Yes		No **X**	Depth (inches):	**>16**

Wetland Hydrology Present?

Yes _____ **No X**

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

Remarks:

PHS # 6960

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

Project/Site: **Dollar Street** City/County: **West Linn/Clackamas** Sampling Date: **6/11/2020**

Applicant/Owner: **West Linn/Wilsonville Schools** State: **OR** Sampling Point: **5**

Investigator(s): **JT/MS** Section, Township, Range: **Township 2 South, Range 1 East, Section 34 and 34DC**

Landform (hillslope, terrace, etc.:) **Terrace** Local relief (concave, convex, none): **None** Slope (%): **5**

Subregion (LRR): **LRR A** Lat: **45.34791338,** Long: **-122.6720** Datum: **WSG85**

Soil Map Unit Name: **Willamette Silt Loam, Wet, 0-3% Slopes** 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? (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 was below the average and normal ranges for two of the three months prior to field work; therefore hydrological conditions were considered below normal for the delineation.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: 30)			
1 ***Pseudotsuga menziesii***	**100**	**X**	**FACU**
2			
3			
4			
	100	= Total Cover	
Sapling/Shrub Stratum (plot size: 15)			
1 ***Sambucus racemosa***	**15**	**X**	**FACU**
2 ***Frangula pershiana***	**5**	**X**	**FAC**
3 ***Rubus armeniacus***	**5**	**X**	**FAC**
4			
5			
	25	= Total Cover	
Herb Stratum (plot size: 5)			
1 ***Polystichum munitum***	**60**	**X**	**FACU**
2			
3			
4			
5			
6			
7			
8			
	60	= Total Cover	
Woody Vine Stratum (plot size: 15)			
1 ***Hedera helix***	**30**	**X**	**FACU**
2			
	30	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **6** (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 # **6960** Sampling Point: **5**

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
0-16	**10YR 3/4**	**100**					**Silt Loam**	

[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)
- 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):	**>16**
Saturation Present? (includes capillary fringe)	Yes		No **X**	Depth (inches):	**>16**

Wetland Hydrology Present?

Yes _____ **No X**

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

Remarks:

PHS # 6960

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

Project/Site: **Dollar Street** City/County: **West Linn/Clackamas** Sampling Date: **6/11/2020**

Applicant/Owner: **West Linn/Wilsonville Schools** State: **OR** Sampling Point: **6**

Investigator(s): **JT/MS** Section, Township, Range: **Township 2 South, Range 1 East, Section 34 and 34DC**

Landform (hillslope, terrace, etc.): **Terrace** Local relief (concave, convex, none): **Convex** Slope (%): **1**

Subregion (LRR): **LRR A** Lat: **45.3490** Long: **-122.6742** Datum: **WSG85**

Soil Map Unit Name: **Willamette Silt Loam, Wet, 0-3% Slopes** 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? (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 was below the average and normal ranges for two of the three months prior to field work; therefore hydrological conditions were considered below normal for the delineation.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: 30)			
1 ***Unidentified deciduous tree***	30	X	(FACU)
2 ***Alnus rubra***	10	X	FAC
3 ***Betula pendula***	5	X	FACU
4			
	45	= Total Cover	
Sapling/Shrub Stratum (plot size: 15)			
1 ***Rubus armeniacus***	30	X	FAC
2			
3			
4			
5			
	30	= Total Cover	
Herb Stratum (plot size: 5)			
1 ***Polystichum munitum***	30	X	FACU
2 ***Juncus tenuis***	20	X	FAC
3 ***Epilobium ciliatum***	10		FACW
4 ***Carex leptopoda***	10		FAC
5			
6			
7			
8			
	70	= Total Cover	
Woody Vine Stratum (plot size: 15)			
1 ***Hedera helix***	20	X	FACU
2			
	20	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

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

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

Percent of Dominant Species That are OBL, FACW, or FAC: **43%** (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 # **6960** Sampling Point: **6**

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
0-8	**10YR 3/3**	**100**					**Silt Loam**	
8-16	**7.5YR 4/4**	**100**					**Silt Loam**	

[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)
- 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):	**>16**
Saturation Present? (includes capillary fringe)	Yes		No **X**	Depth (inches):	**>16**

Wetland Hydrology Present?

Yes _____ **No X**

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

Remarks:

PHS # 6960

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

Project/Site: **Dollar Street** City/County: **West Linn/Clackamas** Sampling Date: **6/11/2020**

Applicant/Owner: **West Linn/Wilsonville Schools** State: **OR** Sampling Point: **7**

Investigator(s): **JT/MS** Section, Township, Range: **Township 2 South, Range 1 East, Section 34 and 34DC**

Landform (hillslope, terrace, etc.:) **Flat** Local relief (concave, convex, none): **Convex** Slope (%): **5**

Subregion (LRR): **LRR A** Lat: **45.35002100,** Long: **-122.6758** Datum: **WSG85**

Soil Map Unit Name: **Woodburn Silt Loam 8-15% Slopes** 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? (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 was below the average and normal ranges for two of the three months prior to field work; therefore hydrological conditions were considered below normal for the delineation.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: 30)			
1 ***Crataegus monogyna***	30	X	FAC
2 ***Juglans nigra***	20	X	UPL
3			
4			
	50	= Total Cover	
Sapling/Shrub Stratum (plot size: 15)			
1 ***Rubus armeniacus***	40	X	FAC
2			
3			
4			
5			
	40	= Total Cover	
Herb Stratum (plot size: 5)			
1 ***Anthoxanthum odoratum***	60	X	FACU
2 ***Fragaria sp***	20		(FAC)
3 ***Holcus lanatus***	10		FAC
4 ***Mitella sp***	5		(FAC)
5 ***Lapsana communis***	5		FACU
6 ***Trifolium pratense***	5		FACU
7 ***Rumex crispus***	3		FAC
8 ***Epilobium ciliatum***	1		FACW
	109	= Total Cover	
Woody Vine Stratum (plot size:)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum ____

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 # **6960** Sampling Point: **7**

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	**10YR 3/6**	**100**					**Silt Loam**	
2-6	**10YR 3/2**	**100**					**Silt Loam**	
6-16	**7.5YR 3/2**	**100**					**Silt Loam**	

[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)
- ___ 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):	**>16**	**Wetland Hydrology Present?**
Saturation Present? (includes capillary fringe)	Yes ___	No **X**	Depth (inches):	**>16**	**Yes** ___ **No X**

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

Remarks:

Appendix C

Study Area Photographs
(ground level)

Photo A:

View of Stream 1 looking northeast (upstream).

Photo B:

View of lower portion of Stream 1 looking downstream (Southwest).

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

Photo documentation

Dollar Street School Project, West Linn Oregon

Photos taken June 11, 2020

Photo C:

View of Sample Point (SP) 1 and Stream 1 looking north.

Photo D:

Looking northeast at SP 2.

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

Photo documentation

Dollar Street School Project, West Linn Oregon

Photos taken June 11, 2020

Photo E:

View of SP 3 looking southwest.

Photo F

View of the southern border of the study area looking east.

#6960
8/24/2020

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

Photo documentation

Dollar Street School Project, West Linn Oregon

Photos taken June 11, 2020

Photo G:

View of Sample Point 4 looking southwest.

Photo H:

View of sample point 5 looking northeast.

#6960
8/24/2020

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

Photo documentation

Dollar Street School Project, West Linn Oregon

Photos taken June 11, 2020

Photo I:

View of SP 7 looking north.

Photo J:

View of top of ravine looking north.

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

Photo documentation

Dollar Street School Project, West Linn Oregon

Photos taken June 11, 2020

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 study area 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-study area" 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 up to 24 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.