



# 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](http://www.oregon.gov/dsl)

### State Land Board

September 21, 2021

NEXT Renewable Fuels Oregon, LLC

Attn: Chris Efird

11767 Katy Freeway, Suite 705

Houston, TX 77079

Kate Brown

Governor

Shemia Fagan

Secretary of State

Re: WD # 2020-0663 **Approved**

Wetland Delineation Report for NEXT Renewable Fuels Oregon  
Columbia County; T8N R4W S15, S16, S21, S22, and S23; Multiple  
Tax Maps and Tax Lots, See Attached Table A-1; APP # 63077

Tobias Read

State Treasurer

Dear Chris Efird:

The Department of State Lands has reviewed the wetland delineation report prepared by Anderson Perry & Associates, Inc. for the site referenced above. Please note that the 2 study areas include only a portion of the tax lots described above (see the attached table and maps). Based upon the information presented in the report, and additional information submitted upon request, we concur with the wetland and waterway boundaries as mapped in Figure 6, 6A through 6W of the report. Please replace all copies of the preliminary wetland maps with these final Department-approved maps.

Within the 2 study areas, 6 wetlands (Wetland 1 through 6, totaling approximately 141.04 acres) and 2 waterways (McLean Slough and Ditch 1 Network) were identified. They are subject to the permit requirements of the state Removal-Fill Law. Under current regulations, 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).

This concurrence is for purposes of the state Removal-Fill Law only. 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.

Please be advised that state law establishes a preference for avoidance of wetland impacts. Because measures to avoid and minimize wetland impacts may include reconfiguring parcel layout and size or development design, we recommend that you work with Department staff on appropriate site design before completing the city or county land use approval process.

This concurrence is based on information provided to the agency. 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 the Jurisdiction Coordinator for Columbia County, Daniel Evans, PWS, at (503) 986-5271.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter Ryan".

Peter Ryan, SPWS  
Aquatic Resource Specialist

Enclosures

ec: Sue Brady, Anderson Perry & Associates  
Columbia County Planning Department  
Caila Heintz, Corps of Engineers  
Dan Cary, SPWS, DSL  
Melanie Olson, Business Oregon

**WETLAND DELINEATION / DETERMINATION REPORT COVER FORM**

Fully completed and signed report cover forms and applicable fees are required before report review timelines are initiated by the Department of State Lands. Make checks payable to the Oregon Department of State Lands. To pay fees by credit card, go online at: <https://apps.oregon.gov/DSL/EPS/program?key=4>.

Attach this completed and signed form to the front of an unbound report or include a hard copy with a digital version (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 of the completed cover form and report may be e-mailed to: **Wetland\_Delineation@dsl.state.or.us**. For submittal of PDF files larger than 10 MB, e-mail DSL instructions on how to access the file from your ftp or other file sharing website.

Contact and Authorization Information		
<input checked="" type="checkbox"/> Applicant <input type="checkbox"/> Owner Name, Firm and Address: NEXT Renewable Fuels Oregon, LLC 11767 Katy Freeway, Suite 705 Houston, TX 77079	Business phone # (503) 867-8100 Mobile phone # (optional) (281) 541-7311 E-mail: chris@nextrenewables.com <div style="text-align: right; font-size: 1.2em; color: blue; font-weight: bold;">RECEIVED</div>	
<input type="checkbox"/> Authorized Legal Agent, Name and Address (if different):	Business phone # Mobile phone # (optional) E-mail: <div style="text-align: right; color: red; font-weight: bold;">NOV 30 2020</div> <div style="text-align: right; color: blue; font-weight: bold;">466.00</div> <div style="text-align: right; font-size: 0.8em; color: blue;">RECEIVED \$ DEPARTMENT OF STATE LANDS</div>	
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: <u>Christopher Efrid</u> Signature: Date: <u>11/16/2020</u> Special instructions regarding site access: _____		
Project and Site Information		
Project Name: NEXT Renewable Fuels Oregon	Latitude: 46.165670      Longitude: -123.161744 decimal degree - centroid of site or start & end points of linear project	
Proposed Use: Construct a renewable diesel facility at Port Westward	Tax Map # Tax Lot(s) See attached.	
Project Street Address (or other descriptive location):	Tax Map # Tax Lot(s)	
City: Clatskanie      County: Columbia	Township      Range      Section      QQ Use separate sheet for additional tax and location information Waterway: Unnamed ditches      River Mile: N/A	
Wetland Delineation Information		
Wetland Consultant Name, Firm and Address: Sue Brady, Biologist Anderson Perry & Associates, Inc. 1901 N. Fir Street La Grande, Oregon 97850	Phone # (541) 963-8309 Mobile phone # (if applicable) E-mail: sbrady@andersonperry.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: <u>Susan J. Brady</u> Date: <u>11/16/20</u>		
Primary Contact for report review and site access is <input checked="" type="checkbox"/> Consultant <input type="checkbox"/> Applicant/Owner <input type="checkbox"/> Authorized Agent		
Wetland/Waters Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No      Study Area size: <u>186.54</u> Total Wetland Acreage <u>141.04</u>		
Check Applicable Boxes Below		
<input type="checkbox"/> R-F permit application submitted <input type="checkbox"/> Mitigation bank site <input type="checkbox"/> EFSC/ODOE Proj. Mgr: _____ <input type="checkbox"/> Wetland restoration/enhancement project (not mitigation) <input type="checkbox"/> Previous delineation/application on parcel If known, previous DSL # _____	<input checked="" type="checkbox"/> Fee payment submitted \$ <u>466</u> <input type="checkbox"/> Resubmittal of rejected report (\$100) <input type="checkbox"/> Request for Reissuance. See eligibility criteria. (no fee) DSL # _____      Expiration date _____ <input checked="" type="checkbox"/> LWI shows wetlands or waters on parcel Wetland ID code <u>PEM, PSS, PFO</u>	
For Office Use Only		
DSL Reviewer: <u>DE</u>	Fee Paid Date: ____ / ____ / ____	DSL WD # <u>2020-0663</u>
Date Delineation Received: <u>11 / 30 / 20</u>	Scanned: <input type="checkbox"/> Electronic: <input checked="" type="checkbox"/>	DSL App.# _____





*Wetland Delineation Report*

***NEXT Renewable Fuels  
Oregon, LLC***

**NEXT RENEWABLE FUELS  
OREGON**

*2020*

*Revised July 2021*



engineering · surveying · natural resources

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1901 N. Fir Street (P.O. Box 1107) · La Grande, Oregon 97850  
(541) 963-8309

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**WETLAND DELINEATION REPORT  
FOR  
NEXT RENEWABLE FUELS OREGON  
NEXT RENEWABLE FUELS OREGON, LLC**

**NOVEMBER 2020  
REVISED JULY 2021**

By  
Sue Brady, Biologist

ANDERSON PERRY & ASSOCIATES, INC.

La Grande, Redmond, and Hermiston, Oregon  
Walla Walla, Washington

# Table of Contents

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<b>A. Site Description, Landscape Setting</b> .....	<b>1</b>
<b>B. Site Alterations, Current and Past Land Use</b> .....	<b>2</b>
B.1 Soils .....	2
B.2 Hydrology.....	2
B.3 Vegetation .....	2
<b>C. Precipitation Data and Analysis</b> .....	<b>3</b>
C.1 Climate and Growing Season .....	3
C.2 Precipitation and Natural Resources Conservation Service WETS Table Summary.....	3
<b>D. Investigation Methods</b> .....	<b>10</b>
D.1 Pre-Field Review .....	10
D.1.1 Soils .....	10
D.1.2 Hydrology .....	11
D.1.3 Vegetation .....	11
D.2 On-Site Wetland Investigation.....	11
D.2.1 Soils .....	12
D.2.2 Hydrology .....	12
D.2.3 Vegetation .....	12
<b>E. Description of All Wetlands and Other Non-Wetland Waters</b> .....	<b>13</b>
E.1 Wetlands.....	13
E.1.1 Wetland 1 .....	13
E.1.2 Wetland 2 .....	15
E.1.3 Wetland 3 .....	15
E.1.4 Wetland 4 .....	16
E.1.5 Wetland 5 .....	17
E.1.6 Wetland 6 .....	17
E.2 Other Waters of the State/U.S.....	18
<b>F. Deviation from Local Wetland Inventory or National Wetlands Inventory</b> .....	<b>19</b>
<b>G. Mapping Method</b> .....	<b>19</b>
<b>H. Additional Information</b> .....	<b>19</b>
<b>I. Results and Conclusions</b> .....	<b>21</b>
<b>J. Disclaimer Statement</b> .....	<b>21</b>

## TABLES

Table A-1 Tax Lots within the Study Areas.....	1
Table C-1A Summary of Monthly Normal and Recorded Precipitation between July 1, 2018, and October 23, 2018 .....	3
Table C-1B Summary of Monthly Normal and Recorded Precipitation between August 1, 2018, and November 29, 2018.....	4
Table C-1C Summary of Monthly Normal and Recorded Precipitation between January 1, 2019, and April 12, 2019.....	4
Table C-1D Summary of Monthly Normal and Recorded Precipitation between August 1, 2019, and November 14, 2019.....	4
Table C-1E Summary of Monthly Normal and Recorded Precipitation between July 1, 2020, and September 30, 2020 .....	5



Table C-1F Summary of Monthly Normal and Recorded Precipitation between January 1, 2021, and April 8, 2021.....	5
Table C-1G Summary of Monthly Normal and Recorded Precipitation between February 1, 2021, and May 11, 2021 .....	5
Table C-1H Summary of Monthly Normal and Recorded Precipitation between April 1, 2021, and June 30, 2021 .....	6
Table C-2A Summary of Daily Normal and Recorded Precipitation between October 10, 2018, and October 23, 2018 .....	6
Table C-2B Summary of Daily Normal and Recorded Precipitation between November 16, 2018, and November 29, 2018.....	7
Table C-2C Summary of Daily Normal and Recorded Precipitation between March 30, 2019, and April 12, 2019 .....	7
Table C-2D Summary of Daily Normal and Recorded Precipitation between November 1, 2019, and November 14, 2019.....	8
Table C-2E Summary of Daily Normal and Recorded Precipitation between September 17, 2020, and September 30, 2020 .....	8
Table C-2F Summary of Daily Normal and Recorded Precipitation between March 26, 2021, and April 8, 2021.....	9
Table C-2G Summary of Daily Normal and Recorded Precipitation between April 28, 2021, and May 11, 2021.....	9
Table C-2H Summary of Daily Normal and Recorded Precipitation between June 17, 2021, and June 30, 2021* .....	10
Table D-1 Soils Found Within the Study Areas .....	11
Table E-1 Wetlands Delineated within the Study Areas .....	13
Table E-2 Waterways Delineated within the Study Areas .....	18
Table H-1 Endangered Species Act-listed Species Potentially Present in or near the Study Areas.....	20

**APPENDICES**

Appendix A	Figures
Appendix B	Wetland Determination Data Forms
Appendix C	Site Photographs
Appendix D	Additional Information
Appendix E	Literature Citations and References

## A. Site Description, Landscape Setting

NEXT Renewable Fuels Oregon, LLC, proposes to construct a renewable diesel facility at Port Westward, near Clatskanie, Columbia County, Oregon. This facility will produce diesel fuel by recycling various cooking oils and greases and other animal and vegetable fats. The facility will include storage facilities for the raw oil feedstocks and renewable diesel fuel, processing facilities, waste handling facilities, administrative buildings, and other structures required for facility operation. In addition, an access road will be constructed to the west to connect with Hermo Road, the existing gravel access road to the north will be improved, an electrical connection will be constructed to tie into the existing power lines to the north, a pipeline will be constructed to transport raw materials and renewable diesel to and from the existing terminalling provider, and a rail connector will be constructed to the east to tie into the existing rail line near Kallunki Road. Improvements to Kallunki Road will also be required to allow transport of equipment and materials from the small barge docks on the Columbia River to the facility site.

This Wetland Delineation Report was prepared to aid in the design process of the new renewable diesel facility, associated fuel pipelines, electrical transmission lines, rail line, and access roads. Two study areas are included in this study. Study Area A (163.01 acres) covers the proposed facility site and associated supporting infrastructure, while Study Area B (23.53 acres) consists of the proposed Kallunki Road improvements and large laydown areas.

The study areas are located in the Lower Beaver Creek-Frontal Columbia River subwatershed (HUC-170800030207) in the Coastal Ranges ecoregion. This region is characterized by a modified marine climate with cool, rainy winters and mild summers. The topography in the study area is flat floodplain with an elevation of approximately 3 to 15 feet above sea level.

The legal description is Township 8 North, Range 4 West, Sections 16, 21, 22, and 23, Willamette Meridian. The study areas include portions of the tax lots identified on Table A-1.

**TABLE A-1  
 TAX LOTS WITHIN THE STUDY AREAS**

Township	Range	Section	Tax Map	Tax Lot
8 North	4 West	15	08041500	100*, 300*, 400*
		16	08041600	200*, 300*
		21	08042100	600*, 700*, ROAD (Hermo Road)*
		22	08042200	100*, 200, 300, 400*, 500*, 600*, 1100*
		23	080423BO	700*, 800*, RAILROAD*
			08042300	800*

\*Indicates the study areas only includes a portion of the tax lot.

Appendix A contains Figures 1 through 6W that provide the Location and Vicinity Maps, a Tax Lot Map, a National Wetlands Inventory (NWI) Map, a Soils Map, an Aerial Photograph, and Wetland Delineation Maps to aid in review of the proposed project.

The features discussed in this Report consist of 141.04 acres of wetlands and numerous ditches within the two study areas. This investigation was conducted by Sue Brady, Anderson Perry & Associates, Inc. (AP) biologist, on October 22 and 23, 2018; November 27, 28, and 29, 2018; April 12, 2019;



November 14, 2019; September 30, 2020; April 8, 2021; May 11, 2021; and July 7, 2021. Wetland determination data forms from 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 [USACE], 2010) were used to record information gathered from the sample plots and are included in Appendix B. Site photographs are included in Appendix C. Precipitation data and historic aerial photographs are included in Appendix D.

## **B. Site Alterations, Current and Past Land Use**

The land within and adjoining Study Area A is agricultural land, predominantly pasture, mint fields, and hybrid poplar plantations. Portland General Electric's (PGE) Beaver Power Plant and Global Partners' storage and export facility are located north of Study Area A. Kallunki Road and a rail line are located to the east, Hermo Road is located to the west, and the Columbia River/Bradbury Slough is located to the north. The City of Clatskanie is approximately 4.5 miles southwest.

Study Area B is north of Study Area A, and consists of Kallunki Road, access roads, rail lines, and open vegetated/unvegetated areas in the Port Westward industrial area.

### **B.1 Soils**

Soils within and adjacent to the study areas have been historically influenced by the Columbia River, although the dikes that have been constructed in the area have cut off these areas from direct river impact. The study areas have been impacted by agriculture/grazing, construction and maintenance of roads, the railroad, and the construction and maintenance of the energy infrastructure at Port Westward.

### **B.2 Hydrology**

The land in the study areas is flat and in the Columbia River floodplain, although dikes have been constructed that currently prevent the river from directly influencing surface hydrology in the study areas. The study areas receive water from precipitation and groundwater. Surface and subsurface hydrology in the study areas have been altered by agricultural practices, including ditching, as well as the construction of roads, railroads, and industrial facilities.

### **B.3 Vegetation**

Most of Study Area A is covered by herbaceous vegetation, including mint fields and grasses/sedges associated with agricultural pastureland. There are some extensive areas of Himalayan blackberry thickets, as well as patches of hybrid poplar. A small area of riparian forest is located adjacent to the Columbia River. Disturbance within Study Area A is a result of past and current agricultural use on the property and construction and maintenance of roads.

The portions of Study Area B that are not road, railroad, or open parking areas are mainly vegetated with weedy herbaceous vegetation, with a few scattered trees and shrubs. Disturbance in Study Area B is a result of past and current industrial use of the property and construction and maintenance of the roads and railroad.

Lands outside the study areas have been altered by past and current activities associated with agriculture, industrial development, and the construction and maintenance of roads and the railroad.

## C. Precipitation Data and Analysis

### C.1 Climate and Growing Season

The following information for the climate in the study areas is summarized from the Soil Survey of Columbia County Area, Oregon (Natural Resources Conservation Service [NRCS], 1986) and available climate data. The NRCS National Water and Climate Center WETS table for the Clatskanie weather station, approximately 4.5 miles southwest of the study area, was used (NRCS, 2021a).

The climate in the region is moderate, with mild summers and cool, rainy winters. Temperatures and precipitation are dependent on elevation. The average daily high temperature ranges from approximately 72° Fahrenheit (F) in the summer to approximately 48°F in the winter, with an average annual precipitation of 55.62 inches.

The growing season (28°F day, 70 percent interval) for this area is February 20 through November 30. Of the total annual precipitation, 12.63 inches or approximately 23 percent, usually falls from April through September, which includes the growing season for most crops.

### C.2 Precipitation and Natural Resources Conservation Service WETS Table Summary

Monthly precipitation data for the Clatskanie weather station during the three months preceding each field investigation are presented on Tables C-1A through C-1H (NRCS, 2021a). Precipitation data for July 2021 were not available. Refer to Appendix D for current and historic precipitation data.

**TABLE C-1A  
 SUMMARY OF MONTHLY NORMAL AND RECORDED PRECIPITATION  
 BETWEEN JULY 1, 2018, AND OCTOBER 23, 2018**

	July	August	September	October	Total Water Year*
Recorded Precipitation (inches)	0.01	0.45	2.52	0.88 (to date)	55.13 (to date)
Precipitation Average (inches)	0.84	0.96	2.22	4.08 (month)	59.70
<b>Percent of Average</b>	<b>1</b>	<b>47</b>	<b>114</b>	<b>22</b>	<b>92</b>
Monthly Normal (inches)					
<b>30 Percent Chance Less Than</b>	0.40	0.40	0.72	2.17	38.13
<b>30 Percent Chance More Than</b>	1.01	1.17	2.65	4.98	71.49

\*Includes water year October 2017 through September 2018 plus October 2018.



**TABLE C-1B**  
**SUMMARY OF MONTHLY NORMAL AND RECORDED PRECIPITATION**  
**BETWEEN AUGUST 1, 2018, AND NOVEMBER 29, 2018**

	August	September	October	November	Total Water Year*
Recorded Precipitation (inches)	0.45	2.52	4.41	5.03 (to date)	63.69 (to date)
Precipitation Average (inches)	0.96	2.22	4.08	8.84 (month)	68.54
<b>Percent of Average</b>	<b>47</b>	<b>114</b>	<b>108</b>	<b>57</b>	<b>93</b>
Monthly Normal (inches)					
<b>30 Percent Chance Less Than</b>	0.40	0.72	2.17	5.92	44.05
<b>30 Percent Chance More Than</b>	1.17	2.65	4.98	10.59	82.08

\*Includes water year October 2017 through September 2018 plus October 2018 through November 2018.

**TABLE C-1C**  
**SUMMARY OF MONTHLY NORMAL AND RECORDED PRECIPITATION**  
**BETWEEN JANUARY 1, 2019, AND APRIL 12, 2019**

	January	February	March	April	Total Water Year*
Recorded Precipitation (inches)	4.70	5.62	1.40	3.57 (to date)	33.30 (to date)
Precipitation Average (inches)	8.82	6.74	5.94	4.08 (month)	47.08
<b>Percent of Average</b>	<b>53</b>	<b>83</b>	<b>23</b>	<b>87</b>	<b>71</b>
Monthly Normal (inches)					
<b>30 Percent Chance Less Than</b>	5.13	4.56	4.36	2.85	31.34
<b>30 Percent Chance More Than</b>	10.00	8.06	6.98	4.85	56.29

\*Includes water year October 2018 through April 2019.

**TABLE C-1D**  
**SUMMARY OF MONTHLY NORMAL AND RECORDED PRECIPITATION**  
**BETWEEN AUGUST 1, 2019, AND NOVEMBER 14, 2019**

	August	September	October	November	Total Water Year*
Recorded Precipitation (inches)	0.40	3.22	3.57	0.32 (to date)	45.71 (to date)
Precipitation Average (inches)	0.96	2.22	4.08	8.84 (month)	68.54
<b>Percent of Average</b>	<b>42</b>	<b>145</b>	<b>87</b>	<b>4</b>	<b>67</b>
Monthly Normal (inches)					
<b>30 Percent Chance Less Than</b>	0.40	0.72	2.17	5.92	44.05
<b>30 Percent Chance More Than</b>	1.17	2.65	4.98	10.59	82.08

\*Includes water year October 2018 through September 2019 plus October 2019 through November 2019.

**TABLE C-1E**  
**SUMMARY OF MONTHLY NORMAL AND RECORDED PRECIPITATION**  
**BETWEEN JULY 1, 2020, AND SEPTEMBER 30, 2020**

	July	August	September	Total Water Year*
Recorded Precipitation (inches)	0.58	0.29	4.75	55.81
Precipitation Average (inches)	0.84	0.96	2.22	55.62
<b>Percent of Average</b>	<b>68</b>	<b>30</b>	<b>214</b>	<b>100</b>
Monthly Normal (inches)				
<b>30 Percent Chance Less Than</b>	0.40	0.40	0.72	35.96
<b>30 Percent Chance More Than</b>	1.01	1.17	2.65	66.51

\*Includes water year October 2019 through September 2020.

**TABLE C-1F**  
**SUMMARY OF MONTHLY NORMAL AND RECORDED PRECIPITATION**  
**BETWEEN JANUARY 1, 2021, AND APRIL 8, 2021**

	January	February	March	April	Total Water Year*
Recorded Precipitation (inches)	10.60	Missing	3.22	0.18 (to date)	36.03 (to date)
Precipitation Average (inches)	8.28	6.74	5.94	4.08 (month)	47.08
<b>Percent of Average</b>	<b>128</b>	<b>N/A</b>	<b>54</b>	<b>5</b>	<b>77</b>
Monthly Normal (inches)					
<b>30 Percent Chance Less Than</b>	5.13	4.56	4.36	2.85	31.34
<b>30 Percent Chance More Than</b>	10.00	8.06	6.98	4.85	56.29

\*Includes water year October 2020 through April 2021.

**TABLE C-1G**  
**SUMMARY OF MONTHLY NORMAL AND RECORDED PRECIPITATION**  
**BETWEEN FEBRUARY 1, 2021, AND MAY 11, 2021**

	February	March	April	May	Total Water Year*
Recorded Precipitation (inches)	Missing	3.22	1.72	0.66 (to date)	36.69 (to date)
Precipitation Average (inches)	6.74	5.94	4.08	2.70 (month)	49.78
<b>Percent of Average</b>	<b>N/A</b>	<b>54</b>	<b>5</b>	<b>24</b>	<b>74</b>
Monthly Normal (inches)					
<b>30 Percent Chance Less Than</b>	4.56	4.36	2.85	1.82	33.16
<b>30 Percent Chance More Than</b>	8.06	6.98	4.85	3.22	59.51

\*Includes water year October 2020 through May 2021.



**TABLE C-1H**  
**SUMMARY OF MONTHLY NORMAL AND RECORDED PRECIPITATION**  
**BETWEEN APRIL 1, 2021, AND JUNE 30, 2021**

	April	May	June	Total Water Year*
Recorded Precipitation (inches)	1.18	1.72	2.78	41.53
Precipitation Average (inches)	4.08	2.70	1.83	46.24
<b>Percent of Average</b>	<b>29</b>	<b>80</b>	<b>139</b>	<b>90</b>
Monthly Normal (inches)				
<b>30 Percent Chance Less Than</b>	2.85	1.82	1.28	34.44
<b>30 Percent Chance More Than</b>	4.85	3.22	2.17	61.68

\*Includes water year October 2020 through June 2021; precipitation data for July 2021 not available.

The water year is defined as October 1 through September 30 of the following year; however, when the field investigations occurred in October or November, the data from the previous water year plus the beginning of the current water year were used to provide a meaningful assessment of precipitation conditions. At the time of each field investigation except the one conducted in September 2020, this station reported precipitation for the water year to date below the average amount but within the normal range. In September 2020, the precipitation was slightly above the average for the water year to date, but within the normal range.

Daily precipitation data for the Clatskanie weather station for the two weeks immediately preceding each field investigation are presented on Tables C-2A through C-2H (NRCS, 2021a). Precipitation data for July 2021 were not available. Refer to Appendix D for daily precipitation data. The shaded dates represent the days the field investigations were performed.

**TABLE C-2A**  
**SUMMARY OF DAILY NORMAL AND RECORDED PRECIPITATION BETWEEN**  
**OCTOBER 10, 2018, AND OCTOBER 23, 2018**

Date	October 2018														Total
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Actual Precipitation (inches)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
Average Precipitation (inches)	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	<b>1.82</b>
Daily Normal (inches)															
30 Percent Chance Less Than	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	<b>0.98</b>
30 Percent Chance More Than	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	<b>2.24</b>
<b>Summary: The total precipitation during this period was below both the average and normal amounts.</b>															

**TABLE C-2B**  
**SUMMARY OF DAILY NORMAL AND RECORDED PRECIPITATION BETWEEN**  
**NOVEMBER 16, 2018, AND NOVEMBER 29, 2018**

Date	November 2018														Total
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
Actual Precipitation (inches)	0.02	0.02	0.01	0.00	0.00	0.02	0.29	0.93	0.29	0.02	0.08	1.05	0.55	0.05	<b>3.33</b>
Average Precipitation (inches)	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	<b>4.06</b>
Daily Normal (inches)															
30 Percent Chance Less Than	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	<b>2.80</b>
30 Percent Chance More Than	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	<b>4.90</b>
<b>Summary: The total precipitation during this period was below the average amount but within the normal range.</b>															

**TABLE C-2C**  
**SUMMARY OF DAILY NORMAL AND RECORDED PRECIPITATION BETWEEN**  
**MARCH 30, 2019, AND APRIL 12, 2019**

Date	March 2019		April 2019												Total
	30	31	1	2	3	4	5	6	7	8	9	10	11	12	
Actual Precipitation (inches)	0.00	0.00	0.00	0.05	0.51	0.03	0.19	0.42	0.70	0.02	0.43	0.08	0.79	0.35	<b>3.57</b>
Average Precipitation (inches)	0.19	0.19	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	<b>2.06</b>
Daily Normal (inches)															
30 Percent Chance Less Than	0.14	0.14	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	<b>1.36</b>
30 Percent Chance More Than	0.23	0.23	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	<b>2.38</b>
<b>Summary: The total precipitation during this period was above both the average and normal amounts.</b>															

**TABLE C-2D**  
**SUMMARY OF DAILY NORMAL AND RECORDED PRECIPITATION BETWEEN**  
**NOVEMBER 1, 2019, AND NOVEMBER 14, 2019**

Date	November 2019														Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Actual Precipitation (inches)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.09	0.00	0.10	0.07	0.00	<b>0.32</b>
Average Precipitation (inches)	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	<b>4.06</b>
Daily Normal (inches)															
30 Percent Chance Less Than	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	<b>2.80</b>
30 Percent Chance More Than	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	<b>4.90</b>
<b>Summary: The total precipitation during this period was below both the average and normal amounts.</b>															

**TABLE C-2E**  
**SUMMARY OF DAILY NORMAL AND RECORDED PRECIPITATION BETWEEN**  
**SEPTEMBER 17, 2020, AND SEPTEMBER 30, 2020**

Date	September 2020														Total
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Actual Precipitation (inches)	0.00	0.55	1.30	0.22	0.00	0.00	0.16	1.60	0.32	0.09	0.19	0.11	0.04	0.06	<b>4.64</b>
Average Precipitation (inches)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	<b>0.98</b>
Daily Normal (inches)															
30 Percent Chance Less Than	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	<b>0.28</b>
30 Percent Chance More Than	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	<b>1.26</b>
<b>Summary: The total precipitation during this period was above both the average and normal amounts.</b>															

**TABLE C-2F**  
**SUMMARY OF DAILY NORMAL AND RECORDED PRECIPITATION BETWEEN**  
**MARCH 26, 2021, AND APRIL 8, 2021**

Date	March 2021						April 2021								Total
	26	27	28	29	30	31	1	2	3	4	5	6	7	8	
Actual Precipitation (inches)	0.00	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.18	<b>0.76</b>
Average Precipitation (inches)	0.19	0.19	0.19	0.19	0.19	0.19	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	<b>2.26</b>
Daily Normal (inches)															
30 Percent Chance Less Than	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	<b>1.56</b>
30 Percent Chance More Than	0.23	0.23	0.23	0.23	0.23	0.23	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	<b>2.66</b>
<b>Summary: The total precipitation during this period was below the average amount but within the normal range.</b>															

**TABLE C-2G**  
**SUMMARY OF DAILY NORMAL AND RECORDED PRECIPITATION BETWEEN**  
**APRIL 28, 2021, AND MAY 11, 2021**

Date	April 2021			May 2021											Total	
	28	29	30	1	2	3	4	5	6	7	8	9	10	11		
Actual Precipitation (inches)	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.23	0.06	0.00	0.00	<b>0.67</b>
Average Precipitation (inches)	0.14	0.14	0.14	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	<b>1.41</b>
Daily Normal (inches)																
30 Percent Chance Less Than	0.09	0.09	0.09	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	<b>0.93</b>
30 Percent Chance More Than	0.16	0.16	0.16	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	<b>1.58</b>
<b>Summary: The total precipitation during this period was below both the average and normal amounts.</b>																

**TABLE C-2H**  
**SUMMARY OF DAILY NORMAL AND RECORDED PRECIPITATION BETWEEN**  
**JUNE 17, 2021, AND JUNE 30, 2021\***

Date	June 2021														Total	
	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Actual Precipitation (inches)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
Average Precipitation (inches)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	<b>0.84</b>
Daily Normal (inches)																
30 Percent Chance Less Than	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	<b>0.56</b>
30 Percent Chance More Than	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	<b>0.98</b>
<b>Summary: The total precipitation during this period was below both the average and normal amounts.</b>																

\*Precipitation data not available for July 2021.

## D. Investigation Methods

Two methods of investigation were used to analyze the wetlands within the study areas: a pre-field review of existing information and an on-site wetland investigation.

### D.1 Pre-Field Review

A review of existing literature, maps, and other materials was conducted to identify wetlands or site characteristics indicative of wetlands within the study areas. Known wetland and waterway locations were identified from the U.S. Fish and Wildlife Service (USFWS) NWI Map (USFWS, 2021) (see Figure 3 in Appendix A). These sources can only indicate the likelihood of the presence of wetlands. Actual wetland determinations must be based on data obtained from the field investigation. Soil descriptions were taken from the NRCS website (NRCS, 2021b).

#### D.1.1 Soils

Six soils are mapped within the study areas, as described on Table D-1 and as shown on Figure 4 in Appendix A.



**TABLE D-1  
 SOILS FOUND WITHIN THE STUDY AREAS**

Map Unit	Soil Name	Hydric Rating	Drainage Class	Parent Material	Location
15	Crims silt loam, protected	99	Very poorly drained	Partially decomposed herbaceous plant material over silty alluvium	Floodplains
29	Locoda silt loam, protected	97	Very poorly drained	Silty alluvium derived from mixed sources	Floodplains
60	Udipsammments, nearly level	100	Well drained	Sandy dredge spoils	Floodplains
61	Udipsammments, nearly level, protected	97	Well drained	Sandy dredge spoils	Floodplains
66	Wauna silt loam, protected	98	poorly drained	Silty alluvium derived from mixed sources	Floodplains
68	Wauna-Locoda silt loams, protected	94	Poorly drained	Silty alluvium derived from mixed sources	Floodplains

### D.1.2 Hydrology

The NWI Map identifies extensive wetlands within Study Area A; smaller palustrine emergent (PEM) wetlands in the main part and eastern end, a large PEM wetland covering the majority of the western access road and pipeline routes, and a patch of PEM/Palustrine Forested (PFO) wetland adjacent to the Columbia River. One PEM wetland is identified in Study Area B (see Figure 3 in Appendix A).

### D.1.3 Vegetation

The study areas are within the Coastal Ranges ecoregion, specifically the regional vegetation zone of western hemlock forest (*Tsuga heterophylla*). Native vegetation of this zone typically consists of conifers (*Pseudotsuga menziesii*, *Tsuga heterophylla*, *Thuja plicata*) with an understory of various shrubs and forbs. Hardwood species are less common, but riparian sites are more likely to support stands of hardwoods (e.g., *Acer macrophyllum*, *Populus trichocarpa*, *Fraxinus latifolia*, *Alnus rubra*) (Franklin and Dyrness, 1988).

## D.2 On-Site Wetland Investigation

On-site wetland investigations were conducted by Sue Brady, AP biologist on October 22 and 23, 2018; November 27, 28, and 29, 2018; April 12, 2019; November 14, 2019; September 30, 2020; April 8, 2021; May 11, 2021; and July 7, 2021. Procedures outlined in the USACE *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE, 2010) were used to determine the presence and extent of wetlands within the study area. The methodology outlined in the manuals is based on three essential characteristics of wetlands: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Generally, field indicators of all three characteristics must be present to make a positive wetland determination, except in specific situations as outlined in Chapter 5: Difficult Situations in the Regional Supplement.

A total of 83 paired (upland/wetland) and unpaired sample plots were established to determine plant species composition, analyze soil pits, and evaluate hydrology in areas that appeared to be wetlands or were shown as wetlands on the NWI Map. Sample plot locations were chosen based on NWI mapping, aerial photography, a visual survey of the study area, and local variations in topography and vegetation along the apparent wetland boundaries.

Wetland determination data forms from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* were used to record information gathered from the sample plots and are included in Appendix B. Site photographs are included in Appendix C.

### **D.2.1 Soils**

To determine the presence or absence of hydric soils, soil samples were collected at each representative sample plot. Soils were inspected to a minimum depth of 24 inches, or the depth needed to confirm the presence of hydric soil and hydrology indicators. Soils were analyzed for soil matrix color, soil texture, redoximorphic features, and the presence of mottles or gleying. Soil hue value and chroma were determined using the Munsell Soil Color Charts (Munsell Color, 2009). Observations about hydric soil indicators from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* were noted for each sample plot. The indicators found at the sample plots were Depleted Matrix and Redox Dark Surface. No problematic soils were encountered at the sample plots.

### **D.2.2 Hydrology**

Observations of wetland hydrology indicators from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* were noted for each sample plot. The primary indicators found at the sample plots were Surface Water, High Water Table, Saturation, Hydrogen Sulfide Odor, and Oxidized Rhizospheres along Living Roots. No secondary indicators were necessary for any of the sample plots, and no difficult hydrologic situations were encountered.

### **D.2.3 Vegetation**

Dominant plant species at each sample plot were identified, when possible, and percent cover was visually estimated. Sample plots had an approximately 4-square meter area for the herb and vine strata and an approximately 25-square meter area for the sapling/shrub and tree strata. If a plant was not immediately identifiable in the field, a representative sample was collected and identified in the lab using a dissecting microscope, when necessary. Plants were keyed to species using Hitchcock and Cronquist (1973), Barkworth et al. (2007), and Wilson et al. (2014). Scientific and common names used in this Report are from the U.S. Department of Agriculture (USDA) The PLANTS Database (USDA, 2021). Wetland plant indicator status was taken from the USACE National Wetland Plant List, (USACE, 2018). The hydrophytic vegetation indicator used at the sample plots was the Dominance Test. No problematic situations that precluded evaluating the area were encountered regarding hydrophytic vegetation.

## E. Description of All Wetlands and Other Non-Wetland Waters

Six wetland areas, totaling approximately 141.04 acres within the study areas, McLean Slough, totaling 760 feet within Study Area A, and numerous interconnected ditches totaling 9,335 linear feet within Study Area A, were identified based on field observations (see Figures 6A through 6W in Appendix A).

### E.1 Wetlands

The identified wetland areas appear to have formed naturally and are supported by precipitation, surface runoff, and groundwater. The wetlands have been modified by human activities since they occur in areas that have been subjected to disturbance from agricultural activities (including ditching), livestock grazing, and industrial development.

The delineated wetlands are summarized on Table E-1, including the Hydrogeomorphic (HGM) and Cowardin classifications, the USACE jurisdictional category, sample plots associated with each wetland, and acreage within the study areas. Descriptions of the vegetation, soils, and hydrology for each wetland are presented below. The wetlands documented by this Report are graphically depicted on the wetland delineation maps, as shown on Figures 6A through 6W in Appendix A. Wetland determination data forms documenting the delineation are included in Appendix B, while representative photographs documenting site conditions at the time of the investigation are presented in Appendix C.

**TABLE E-1  
 WETLANDS DELINEATED WITHIN THE STUDY AREAS**

Study Area	Wetland	HGM Class <sup>1</sup>	Cowardin Class <sup>2</sup>	USACE Category and Basis	Sample Plot No.	Acres in Study Area
A	1	Flats	PEM/PSS	Cat. 7 - Adjacent to Columbia River	1 through 22 <sup>3</sup> , 24, 28 through 39, 43, 44, 48 through 54	136.78
	2	Flats	PEM	Cat. 7 - Adjacent to Columbia River	40, 45	1.02
	3	Flats	PEM	Cat. 7 - Adjacent to Columbia River	25, 26, 41, 42	1.98
	4	Flats	PEM/PFO	Cat. 7 - Adjacent to Columbia River	27	0.31
B	5	Flats	PEM	Cat. 7 - Adjacent to Columbia River	46	0.07
	6	Flats	PEM	Cat. 7 - Adjacent to Columbia River	47	0.88
<b>Total</b>						<b>141.04</b>

<sup>1</sup>Adamus, 2001

<sup>2</sup>Cowardin et al., 1979: PSS = Palustrine scrub-shrub

<sup>3</sup>Sample Plot 23 was removed from Study Area A

#### E.1.1 Wetland 1

Wetland 1 is the most extensive wetland in Study Area A, covering the eastern and southern parts of the study area. It primarily consists of pasture and mint fields, with two areas of hybrid poplar plantation along the southern edge. Three areas of upland are present within the pasture that forms the main part of the study area and Wetland 1, which appear to be fill material. These areas are slightly raised above the elevation of the surrounding wetland, with flat surfaces, and may possibly

have been used as storage platforms for hay or other materials. This wetland appears to be supported by precipitation, irrigation water, surface runoff, and groundwater. The wetland delineated in the field is more extensive than shown on the NWI map. Based on site observations, this wetland is classified as PEM and PSS. The wetland is not entirely contained within the study area, as it extends out of the study area to the north, south, east, and west.

### **Hydric Soil**

The hydric soil indicators recorded across most of Wetland 1 were Depleted Matrix (F3) and Redox Dark Surface (F6). Two sample plots (Plots 21 and 29) did not fully meet hydric soil indicators. Following the guidelines set forth in Chapter 5 of the Arid West Regional Supplement, the following steps were used to classify the soil at these locations as hydric:

- 1. Verify that at least one or more indicators of hydrophytic vegetation are present.** Hydrophytic vegetation, classified as such using the Dominance Test, was observed at Plots 21 and 29.
- 2. Verify that at least one primary or two secondary indicators of wetland hydrology are present.** Primary indicator C3 (Oxidized Rhizospheres along Living Roots) was present at Plot 21 and A3 (Saturation) was present at Plot 29.
- 3. Verify that the area is in a landscape setting that is likely to collect or concentrate water.** The sample plots were located at the toe of the fill slope of an access road (Plot 21) and in a level field (Plot 29).
- 4.b. Determine whether a problematic soil situation is present. If present, consider the soil to be hydric. Option 6: Seasonally Ponded Soil.** Based on observations of the topography, soil characteristics, and vegetation of the areas around the test plots, as well as observations of the study area over several years, it seems likely that the soils are ponded and/or saturated to near the surface during the wet season and early part of the growing season. Therefore, in the presence of hydrophytic vegetation and wetland hydrology indicators, the soils at Plots 21 and 29 were considered to be hydric.

### **Hydrology**

The primary hydrology indicators recorded in this wetland were Surface Water (A1), High Water Table (A2), Saturation (A3), and Oxidized Rhizospheres along Living Roots (C3). No problematic hydrologic situations were encountered, and no secondary hydrology indicators were required.

### **Hydrophytic Vegetation**

Vegetation observed in this wetland included sedges, rushes, various native and introduced grasses, and smaller amounts of forbs. There are extensive Himalayan blackberry thickets in some areas, and a stand of poplar saplings in the northwest corner of the main part of the study area. Most of the southern edge of the wetland consists of hybrid poplar plantations. The hydrophytic vegetation indicator used was the Dominance Test. No problematic hydrophytic vegetation situations were encountered.

The wetland boundary was determined using local topographical features and vegetation patterns, coupled with observations of hydric soils and hydrology from the sample soil pits.

### **E.1.2 Wetland 2**

Wetland 2 is located in Study Area A, in the central portion of the new pipeline corridor, north of Hermo Road. It appears to be supported by precipitation, irrigation water, surface runoff, and groundwater. This area is depicted as wetland on the NWI map. Based on site observations, this wetland is classified as PEM. The wetland is not entirely contained within the study area, as it extends to the west.

#### ***Hydric Soil***

The hydric soil indicators recorded were Hydrogen Sulfide (A4) and Redox Dark Surface (F6). No problematic soils were observed.

#### ***Hydrology***

The primary hydrology indicators recorded in this wetland were High-Water Table (A2), Saturation (A3), and Hydrogen Sulfide Odor (C1). No problematic hydrologic situations were encountered, and no secondary hydrology indicators were required.

#### ***Hydrophytic Vegetation***

Vegetation observed in this wetland included reed canarygrass, Himalayan blackberry, and smaller amounts of grasses and forbs. The hydrophytic vegetation indicator used was the Dominance Test. No problematic hydrophytic vegetation situations were encountered.

The wetland boundary was determined using local topographical features and vegetation patterns, coupled with observations of hydric soils and hydrology from the sample soil pits.

### **E.1.3 Wetland 3**

Wetland 3 is also located along the pipeline corridor in Study Area A, in a depression between the access road and the PGE facility. The wetland appears to be supported by precipitation, irrigation water, surface runoff, and groundwater. This area is not depicted as wetlands on the NWI Map. Based on site observations, this wetland is classified as PEM. The wetland is not entirely contained within the study area, as it extends to the east.

#### ***Hydric Soil***

The hydric soil indicators recorded were Depleted Matrix (F3) and Redox Dark Surface (F6). No problematic soils were observed.

#### ***Hydrology***

The primary hydrology indicators recorded in this wetland were High Water Table (A2) and Saturation (A3). Surface water was also observed in the wetland, although not at any of the sample



plots. One sample plot (Plot 42) did not fully meet hydric soil indicators. Following the guidelines set forth in Chapter 5 of the Arid West Regional Supplement, the following steps were used to classify the soil at this location as hydric:

- 1. Verify that at least one or more indicators of hydrophytic vegetation are present.** Hydrophytic vegetation, classified as such using the Dominance Test, was observed at Plot 42.
- 2. Verify that at least one primary or two secondary indicators of wetland hydrology are present.** Primary indicator A3 (Saturation) was present at Plot 42.
- 3. Verify that the area is in a landscape setting that is likely to collect or concentrate water.** Plot 42 was located at the toe of a fill slope, in a swale between that fill slope and an access road.
- 4.b. Determine whether a problematic soil situation is present. If present, consider the soil to be hydric. Option 6: Seasonally Ponded Soil.** Based on observations of the topography, soil characteristics, and vegetation of the areas around the test plot, as well as observations of the study area over several years, it seems likely that the soils are ponded and/or saturated to near the surface during the wet season and early part of the growing season. Therefore, in the presence of hydrophytic vegetation and wetland hydrology indicators, the soil at Plot 42 was considered to be hydric.

### **Hydrophytic Vegetation**

Vegetation observed in this wetland included reed canarygrass, Himalayan blackberry, sedges, rushes, various native and introduced grasses, and smaller amounts of forbs. The hydrophytic vegetation indicator used was the Dominance Test. No problematic hydrophytic vegetation situations were encountered.

The wetland boundary was determined using local topographical features and vegetation patterns, coupled with observations of hydric soils and hydrology from the sample soil pits.

### **E.1.4 Wetland 4**

Wetland 4 is located in Study Area A, along the pipeline corridor adjacent to the Columbia River. The wetland appears to be supported by precipitation, surface runoff, and groundwater. This area is depicted as wetlands on the NWI Map. Based on site observations, this wetland is classified as PEM/PFO. The wetland is not entirely contained within the study area, as it extends to the north.

### **Hydric Soil**

The hydric soil indicator recorded was Redox Dark Surface (F6). No problematic soils were observed.

### **Hydrology**

The primary hydrology indicator recorded in this wetland was Oxidized Rhizospheres along Living Roots (C3). Surface water and saturation were also observed in the wetland, although not at the

sample plots. No problematic hydrologic situations were encountered, and no secondary hydrology indicators were required.

#### ***Hydrophytic Vegetation***

Vegetation observed in this wetland included alder, cottonwood, willow, reed canarygrass, Himalayan blackberry, sedges, rushes, various native and introduced grasses, and smaller amounts of forbs. The hydrophytic vegetation indicator used was the Dominance Test. No problematic hydrophytic vegetation situations were encountered.

The wetland boundary was determined using local topographical features and vegetation patterns, coupled with observations of hydric soils and hydrology from the sample soil pits.

### **E.1.5 Wetland 5**

Wetland 5 is located in Study Area B, bordered by the fill slopes of the small barge dock and Kallunki Road. The wetland appears to be supported by precipitation and surface runoff. This area is not depicted as wetlands on the NWI Map. Based on site observations, this wetland is classified as PEM. The wetland is entirely contained within the study area.

#### ***Hydric Soil***

The hydric soil indicator recorded was Redox Dark Surface (F6). No problematic soils were observed.

#### ***Hydrology***

The primary hydrology indicator recorded in this wetland was Oxidized Rhizospheres along Living Roots (C3). No problematic hydrologic situations were encountered, and no secondary hydrology indicators were required.

#### ***Hydrophytic Vegetation***

Vegetation observed in this wetland included reed canarygrass, Himalayan blackberry, sedges, rushes, various native and introduced grasses, and smaller amounts of forbs. The hydrophytic vegetation indicator used was the Dominance Test. No problematic hydrophytic vegetation situations were encountered.

The wetland boundary was determined using local topographical features and vegetation patterns, coupled with observations of hydric soils and hydrology from the sample soil pits.

### **E.1.6 Wetland 6**

Wetland 6 is located in Study Area B, bordered by the fill slopes of Kallunki Road, an electrical substation, and access roads. The wetland appears to be supported by precipitation and surface runoff. This area is depicted as wetland on the NWI Map. Based on site observations, this wetland is classified as PEM. The wetland is entirely contained within the study area.

**Hydric Soil**

The hydric soil indicator recorded was Redox Dark Surface (F6). No problematic soils were observed.

**Hydrology**

The primary hydrology indicator recorded in this wetland was Oxidized Rhizospheres along Living Roots (C3). Surface water and saturation were also observed in the wetland, although not at the sample plots. No problematic hydrologic situations were encountered, and no secondary hydrology indicators were required.

**Hydrophytic Vegetation**

Vegetation observed in this wetland included reed canarygrass, Himalayan blackberry, sedges, rushes, various native and introduced grasses, and smaller amounts of forbs. The hydrophytic vegetation indicator used was the Dominance Test. No problematic hydrophytic vegetation situations were encountered.

The wetland boundary was determined using local topographical features and vegetation patterns, coupled with observations of hydric soils and hydrology from the sample soil pits.

**E.2 Other Waters of the State/U.S.**

Numerous non-wetland waters were observed in Study Area A, including McLean Slough and a network of ditches (Ditch 1) that drain the agricultural fields in the area, as described on Table E-2. As these ditches are all part of the same interconnected drainage network, the segments were not individually named; however, the location of each is shown on Figures 6A through 6W in Appendix A. These ditches all drain south to the Columbia River via McLean Slough, Beaver Slough, and the Clatskanie River. A total of approximately 760 linear feet of McLean Slough and 9,335 linear feet (1.61 miles) of ditches is contained within Study Area A. Study Area B did not contain any non-wetland waters. No part of the Columbia River/Bradbury Slough is included in either study area.

**TABLE E-2  
 WATERWAYS DELINEATED WITHIN THE STUDY AREAS**

Study Area	Waterway	HGM Class <sup>1</sup>	Cowardin Class <sup>2</sup>	USACE Category and Basis	Linear feet in Study Areas
A	McLean Slough	Riverine	RUB	Cat. 5 - Tributary to Columbia River	760
	Ditch 1 network	Riverine	RUB	Cat. 5 - Tributary to Columbia River	9,335
B	None				
<b>Total</b>					<b>10,095</b>

<sup>1</sup>Adamus, 2001

<sup>2</sup>Cowardin et al., 1979

RUB = Riverine unconsolidated bottom

## **F. Deviation from Local Wetland Inventory or National Wetlands Inventory**

A local wetlands inventory has not been prepared for the Port Westward area. The NWI Map identifies extensive wetlands within Study Area A; smaller PEM wetlands in the main part of the study area and eastern end, a large PEM wetland covering the majority of the western access road and pipeline routes, and a patch of PEM/PFO wetland adjacent to the Columbia River. The NWI map identifies one wetland within Study Area B, a small PEM wetland at the eastern end of the study area (see Figure 3 in Appendix A).

Six wetlands were found during the field investigation. Four of these, Wetlands 1, 2, 4, and 6, were found in areas shown as wetlands on the NWI Map, although the site visit determined that Wetland 1 is much larger than shown on the published mapping. Wetlands 3 and 5 were found in areas not shown as wetland on the NWI map. Wetland determination data forms are provided in Appendix B.

## **G. Mapping Method**

The best professional judgment of the investigator was used to determine the wetland boundaries based on vegetation, soil, and hydrologic and topographic indicators observed in the field. Pin flags were used to mark the wetland boundaries, sample plot locations, and OHWE (where accessible), which were surveyed at the time of the site visit using a Trimble GeoXT 6000 handheld global positioning system unit. This survey was accurate to submeter standards. Where the OHWE was not accessible due to impenetrable blackberry thickets, this boundary was digitized from aerial imagery. The study area boundaries were created using ArcGIS and field-verified using GPS during the site visits.

## **H. Additional Information**

Protected species lists were obtained from the USFWS and National Marine Fisheries Service. According to these lists, Endangered Species Act-listed species that may occur in or near the study areas include those listed in Table H-1 below.

**TABLE H-1  
 ENDANGERED SPECIES ACT-LISTED SPECIES POTENTIALLY PRESENT IN OR NEAR THE STUDY AREAS**

Species	ESU/DPS	Federal Status <sup>1</sup>	Habitat within Study Area
Steelhead ( <i>Oncorhynchus mykiss</i> )	Upper Columbia River DPS	T	No
	Middle Columbia River DPS	T	
	Lower Columbia River DPS	T	
	Upper Willamette River DPS	T	
	Snake River Basin DPS	T	
Chinook salmon ( <i>Oncorhynchus tshawytscha</i> )	Upper Columbia River spring-run ESU	E	No
	Lower Columbia River ESU	T	
	Snake River fall-run ESU	T	
	Snake River spring/summer-run ESU	T	
	Upper Willamette River ESU	T	
Chum salmon ( <i>Oncorhynchus keta</i> )	Columbia River ESU	T	No
Coho salmon ( <i>Oncorhynchus kisutch</i> )	Lower Columbia River ESU	T	No
Sockeye salmon ( <i>Oncorhynchus nerka</i> )	Snake River ESU	E	No
Bull trout ( <i>Salvelinus confluentus</i> )	Columbia River DPS	T	No
Green sturgeon ( <i>Acipenser medirostris</i> )	Southern DPS	T	No
Eulachon ( <i>Thaleichthys pacificus</i> )	Southern DPS	T	No
Columbian white-tailed deer ( <i>Odocoileus leucurus</i> )	N/A	T	Yes
Marbled murrelet ( <i>Brachyramphus marmoratus</i> )	N/A	T	No
Northern spotted owl ( <i>Strix occidentalis caurina</i> )	N/A	T	No
Streaked horned lark ( <i>Eremophila alpestris strigata</i> )	N/A	T	Possibly
Yellow-billed cuckoo ( <i>Coccyzus americanus</i> )	N/A	T	No
Bradshaw's desert-parsley ( <i>Lomatium bradshawii</i> )	N/A	E (Proposed for delisting)	Possibly
Kincaid's lupine ( <i>Lupinus sulphureus ssp. kincaidii</i> )	N/A	T	No
Nelson's checker-mallow ( <i>Sidalcea nelsoniana</i> )	N/A	T	Possibly
Willamette daisy ( <i>Erigeron decumbens</i> )	N/A	E	Possibly

<sup>1</sup> T = Threatened, E = Endangered  
 DPS = distinct population segment  
 ESU = evolutionarily significant unit  
 N/A = Not Applicable



Of these species, the majority are unlikely to be present in the study areas. Numerous listed fish species and designated critical habitat are present in the adjacent Columbia River and tributaries, which are also listed as Essential Fish Habitat and Essential Salmonid Habitat; however, these waterways are outside the study areas. The wetlands within the study areas are not likely to be accessible to food or game fish species during normal water flows but may be accessible during periods of flooding when the rivers and drainage ditches overtop their banks and extend onto the floodplain.

Columbian white-tailed deer are present at Port Westward and have been observed within both study areas. The remaining bird and plant species on Table H-1 have not been observed in the study areas, but habitat may exist for streaked horned lark, Bradshaw's desert-parsley, Nelson's checker-mallow, and Willamette daisy.

## **I. Results and Conclusions**

Site investigations were conducted on October 22 and 23, 2018; November 27, 28, and 29, 2018; April 12, 2019; November 14, 2019; September 30, 2020; April 8, 2021; May 11, 2021; and July 7, 2021. Based on these investigations, the presence of six wetland areas totaling approximately 141.04 acres within the two study areas was confirmed. These results are based on the presence of the three required indicators for wetlands as described in the 1987 USACE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*. Waterways in Study Area A include McLean Slough (approximately 760 linear feet within study Area A) and numerous ditches (totaling approximately 9,335 linear feet) in Study Area A, all part of an interconnected drainage network that serves the agricultural fields in the area. No waterways are present in Study Area B.

The wetlands and waterways may be considered Waters of the State/U.S., and any fill or removal activities could require permits from the USACE and/or the Oregon Department of State Lands (DSL).

## **J. Disclaimer Statement**

The wetland delineation was conducted in accordance with the routine methodology provided in the 1987 USACE *Wetlands Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*.

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

# Appendices Table of Contents

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Appendix A     Figures

Appendix B     Wetland Determination Data Forms

Appendix C     Site Photographs

Appendix D     Additional Information

Appendix E     Literature Citations and References

# **APPENDIX A**

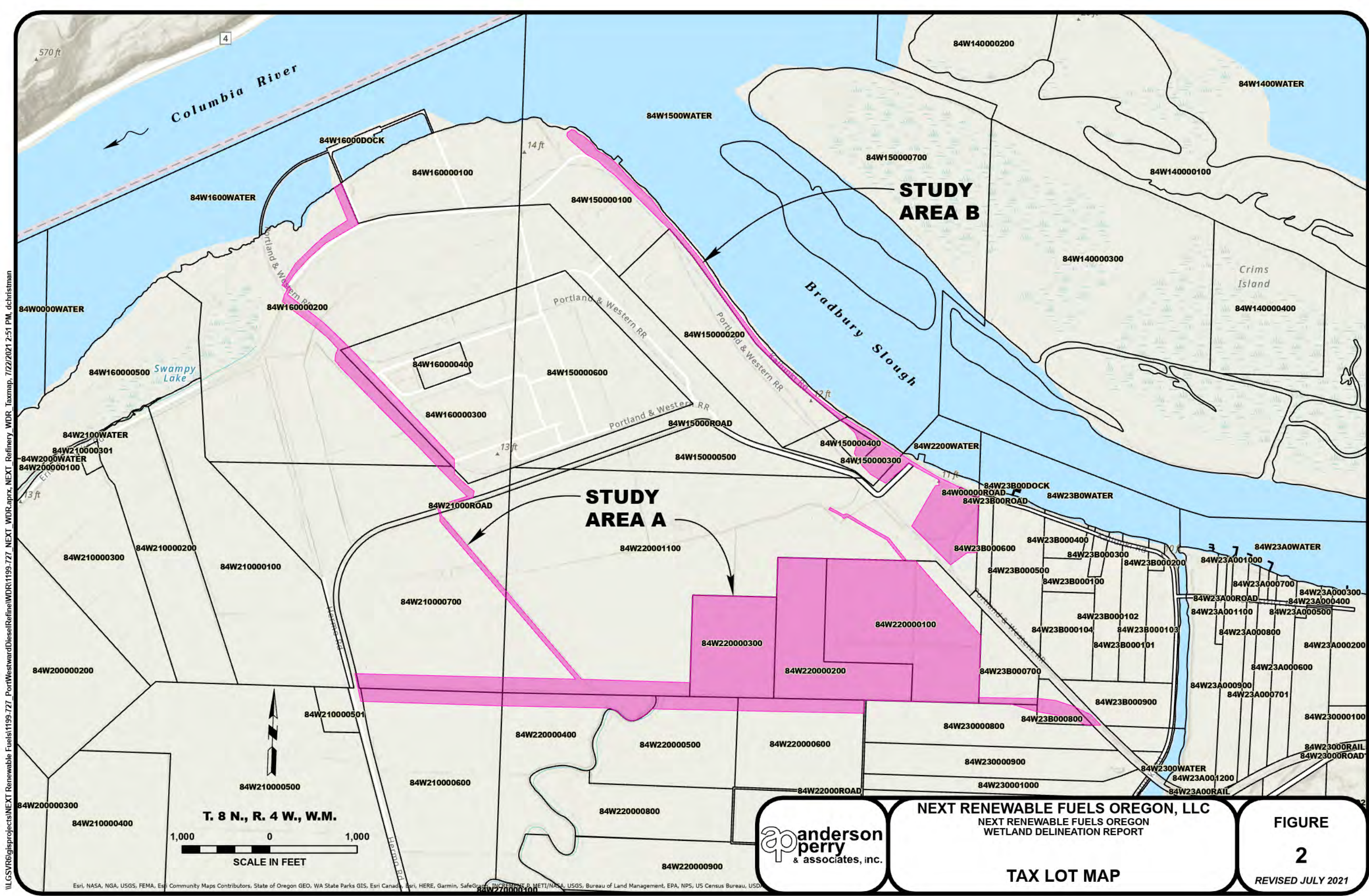
## **Figures**

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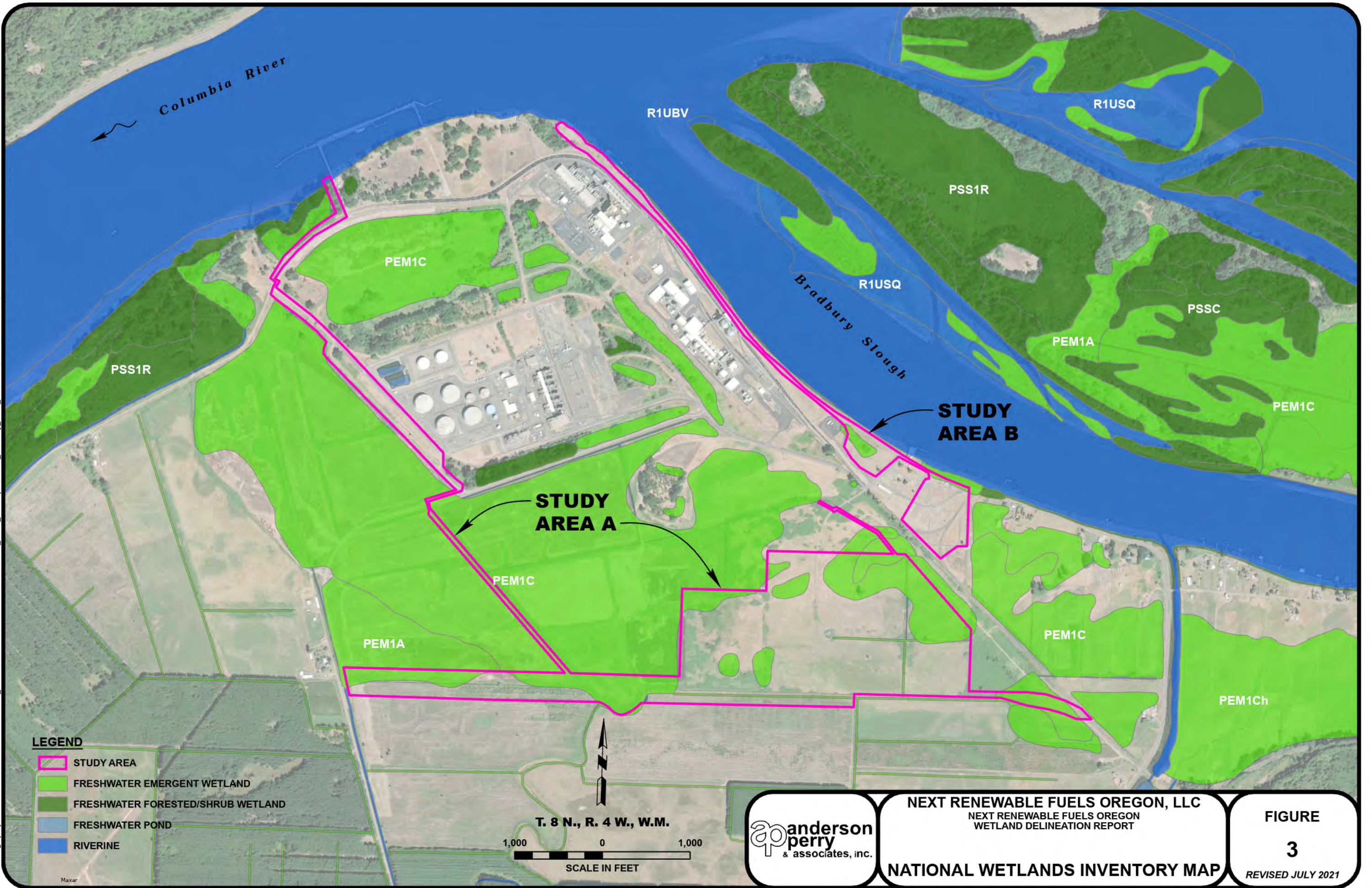


**NEXT RENEWABLE FUELS OREGON, LLC**  
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**TAX LOT MAP**

**FIGURE**  
**2**  
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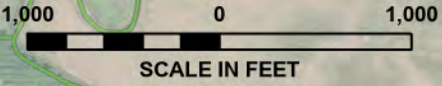
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**LEGEND**

- STUDY AREA
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED/SHRUB WETLAND
- FRESHWATER POND
- RIVERINE

T. 8 N., R. 4 W., W.M.



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**NATIONAL WETLANDS INVENTORY MAP**

**FIGURE**  
**3**  
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**SOILS LEGEND**

- 29 LOCODA SILT LOAM, PROTECTED
- 60 UDIPSAMMENTS, NEARLY LEVEL
- 61 UDIPSAMMENTS, NEARLY LEVEL, PROTECTED
- 66 WAUNA SILT LOAM, PROTECTED
- 68 WAUNA-LOCODA SILT LOAMS, PROTECTED



T. 8 N., R. 4 W., W.M.

SCALE IN FEET



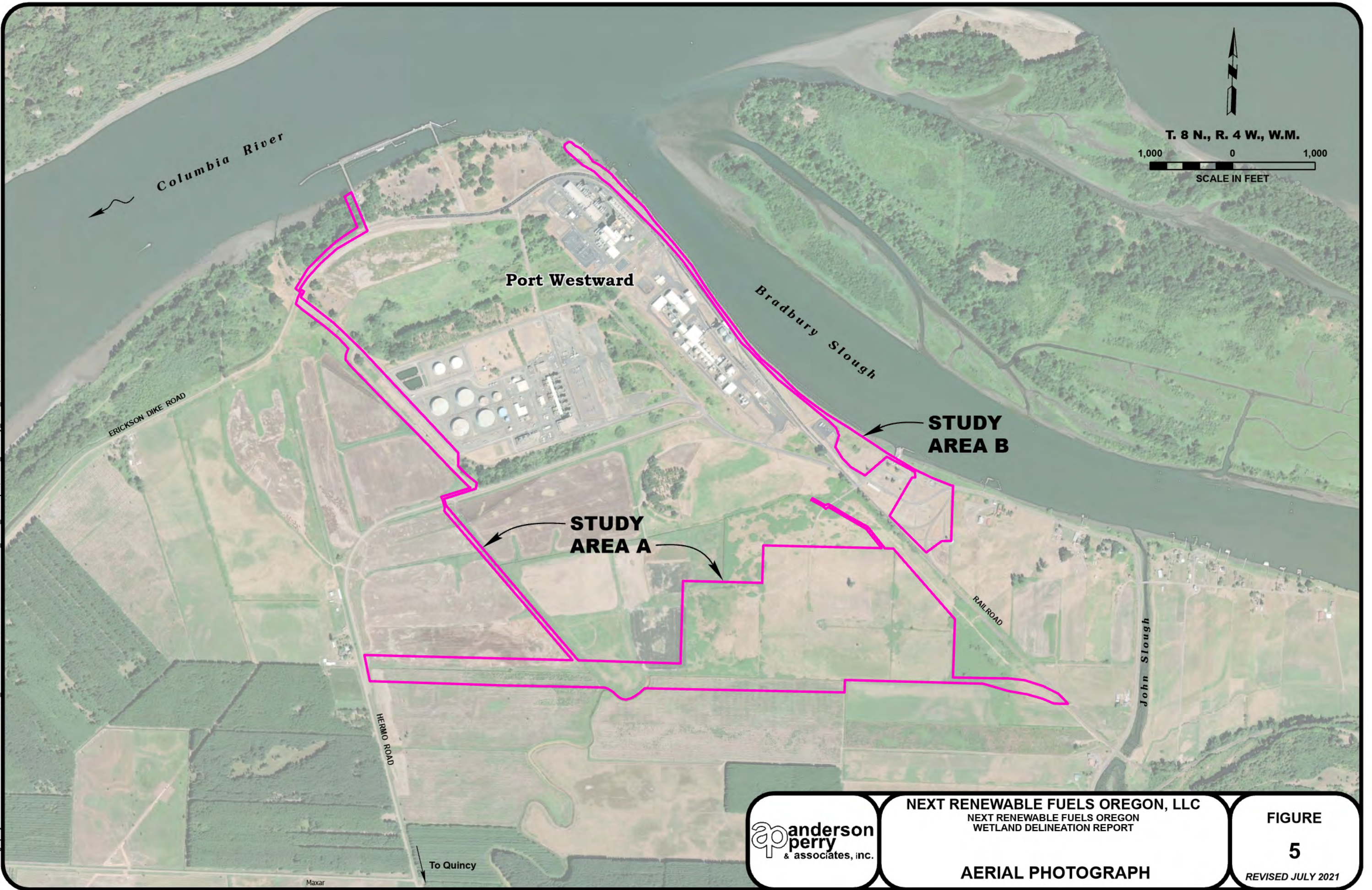
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**SOILS MAP**

**FIGURE**  
**4**  
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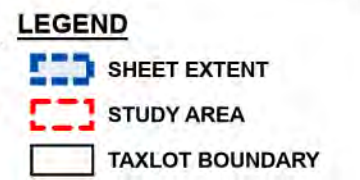
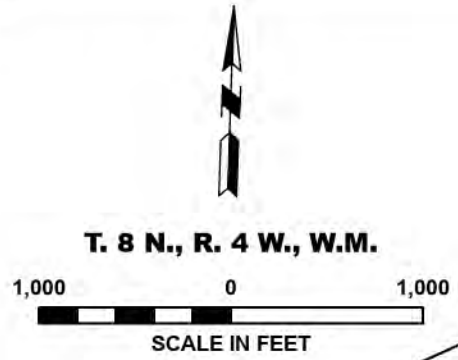
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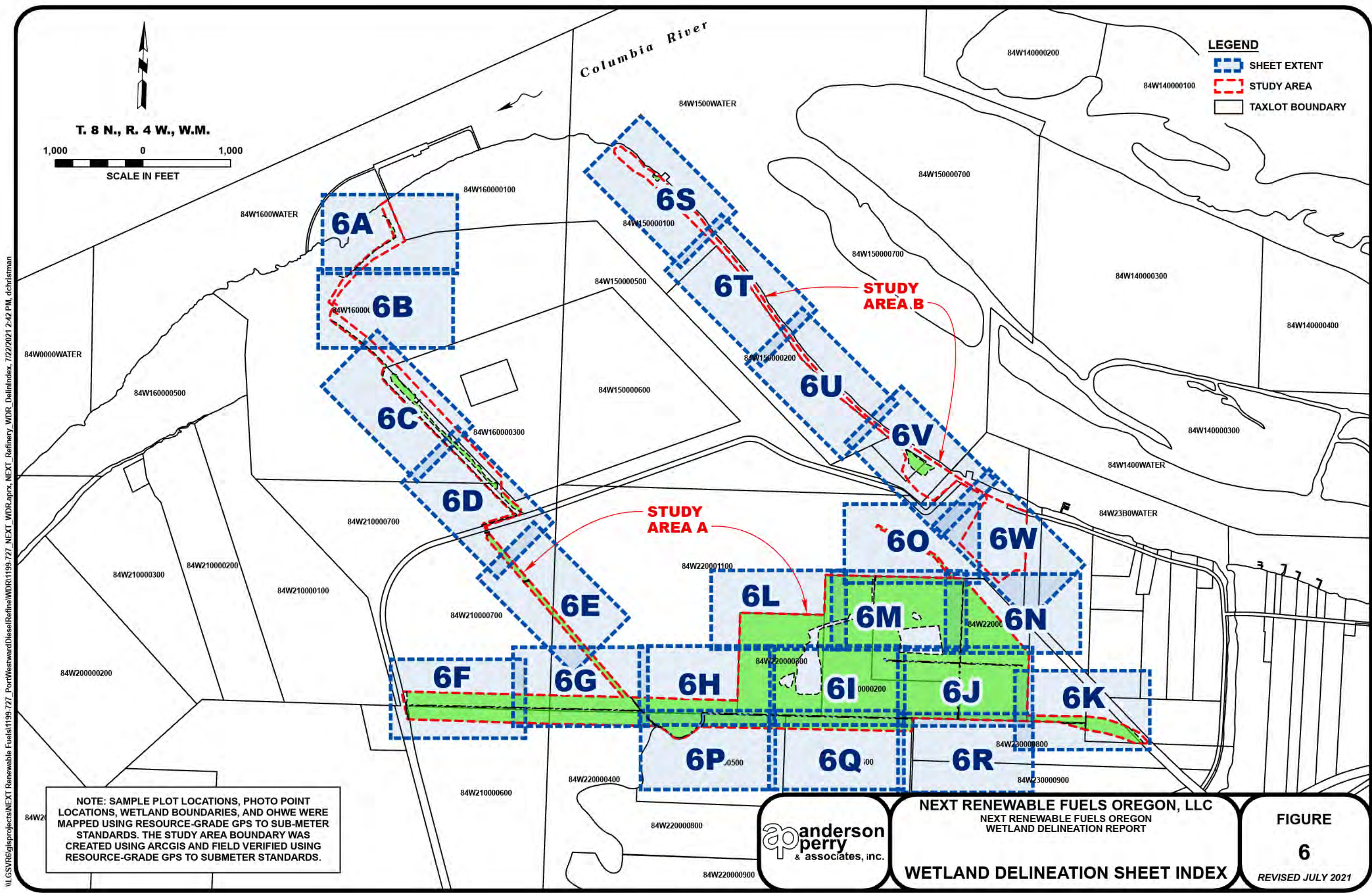
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**AERIAL PHOTOGRAPH**

**FIGURE**  
**5**  
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Columbia River



NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.



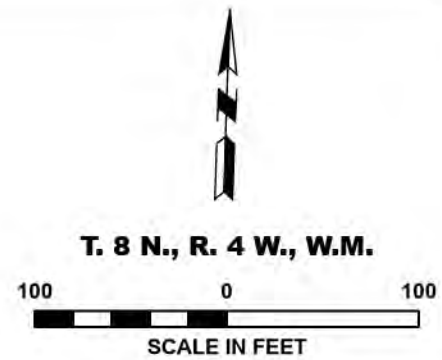
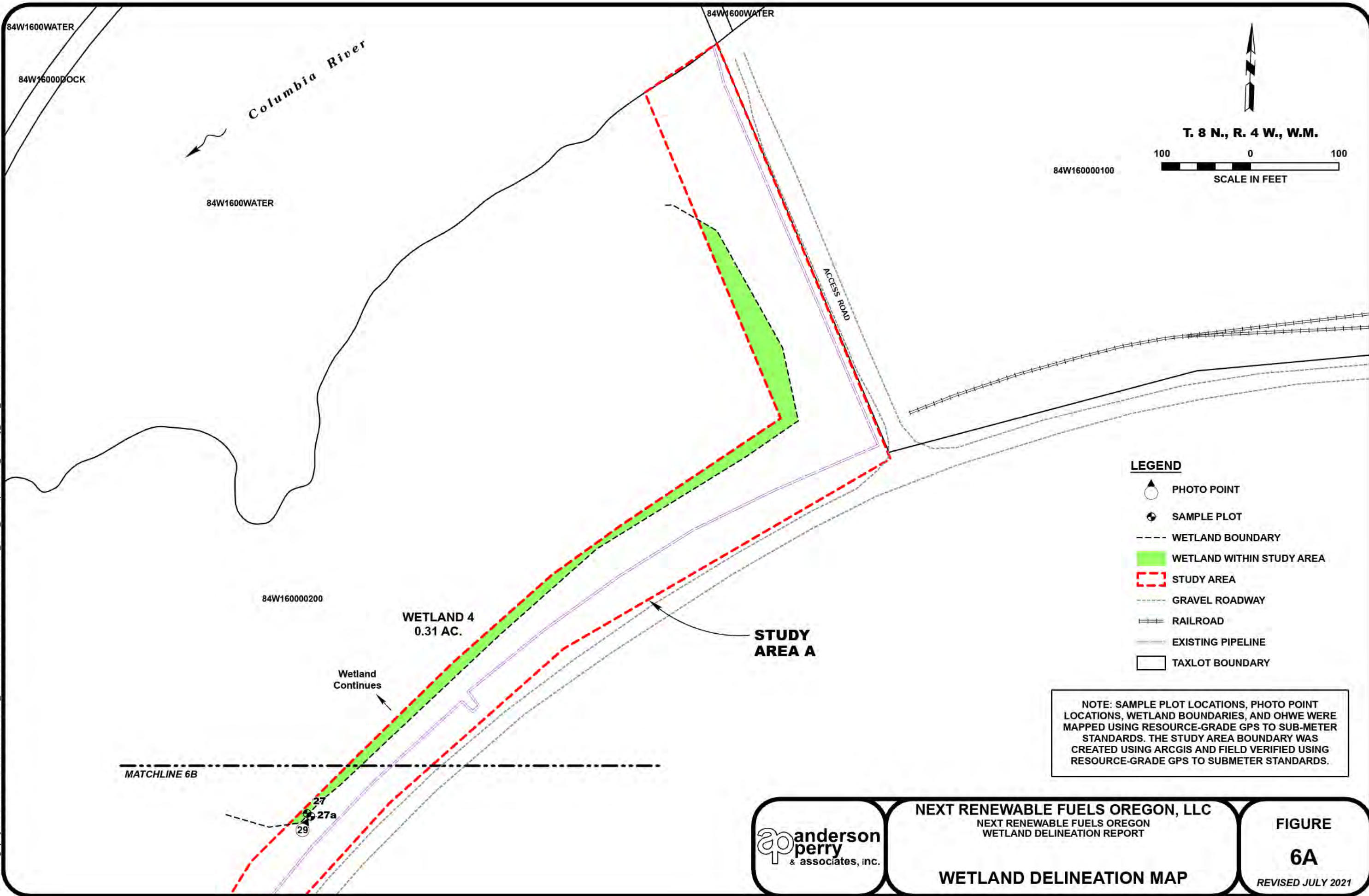
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**WETLAND DELINEATION SHEET INDEX**

**FIGURE**  
**6**  
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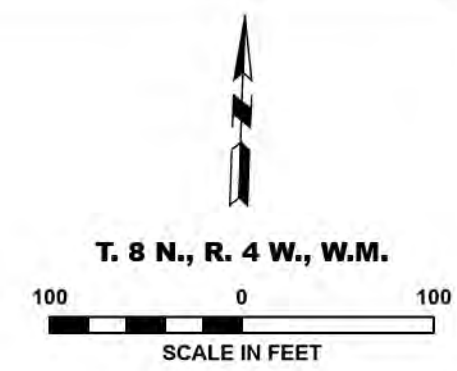
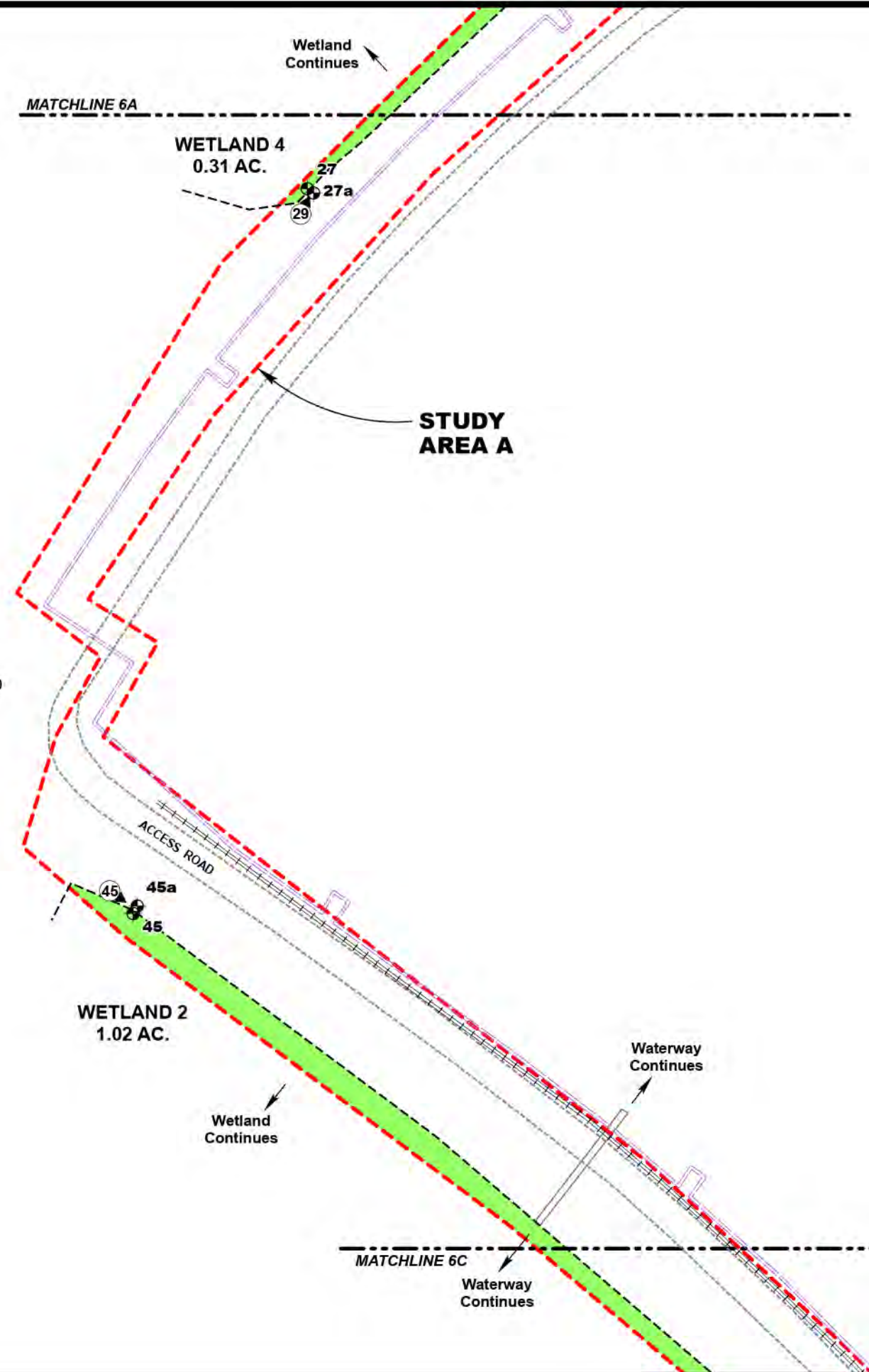


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**WETLAND DELINEATION MAP**

**FIGURE 6A**  
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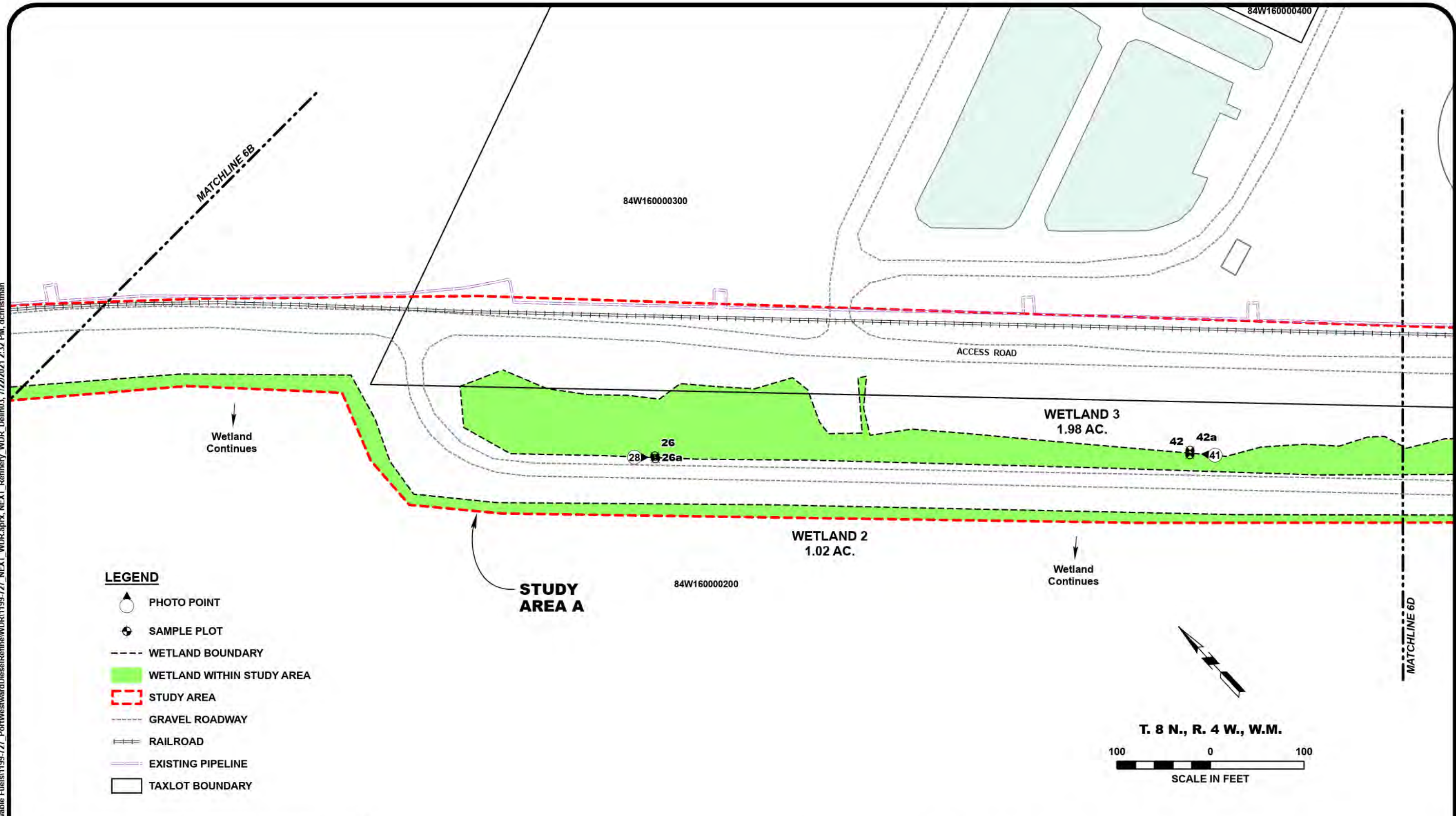
- PHOTO POINT
- SAMPLE PLOT
- WETLAND BOUNDARY
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- GRAVEL ROADWAY
- RAILROAD
- EXISTING PIPELINE
- CULVERT
- TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.

	<b>NEXT RENEWABLE FUELS OREGON, LLC</b> NEXT RENEWABLE FUELS OREGON WETLAND DELINEATION REPORT	<b>FIGURE</b>  <b>6B</b>
	<b>WETLAND DELINEATION MAP</b>	
		REVISED JULY 2021



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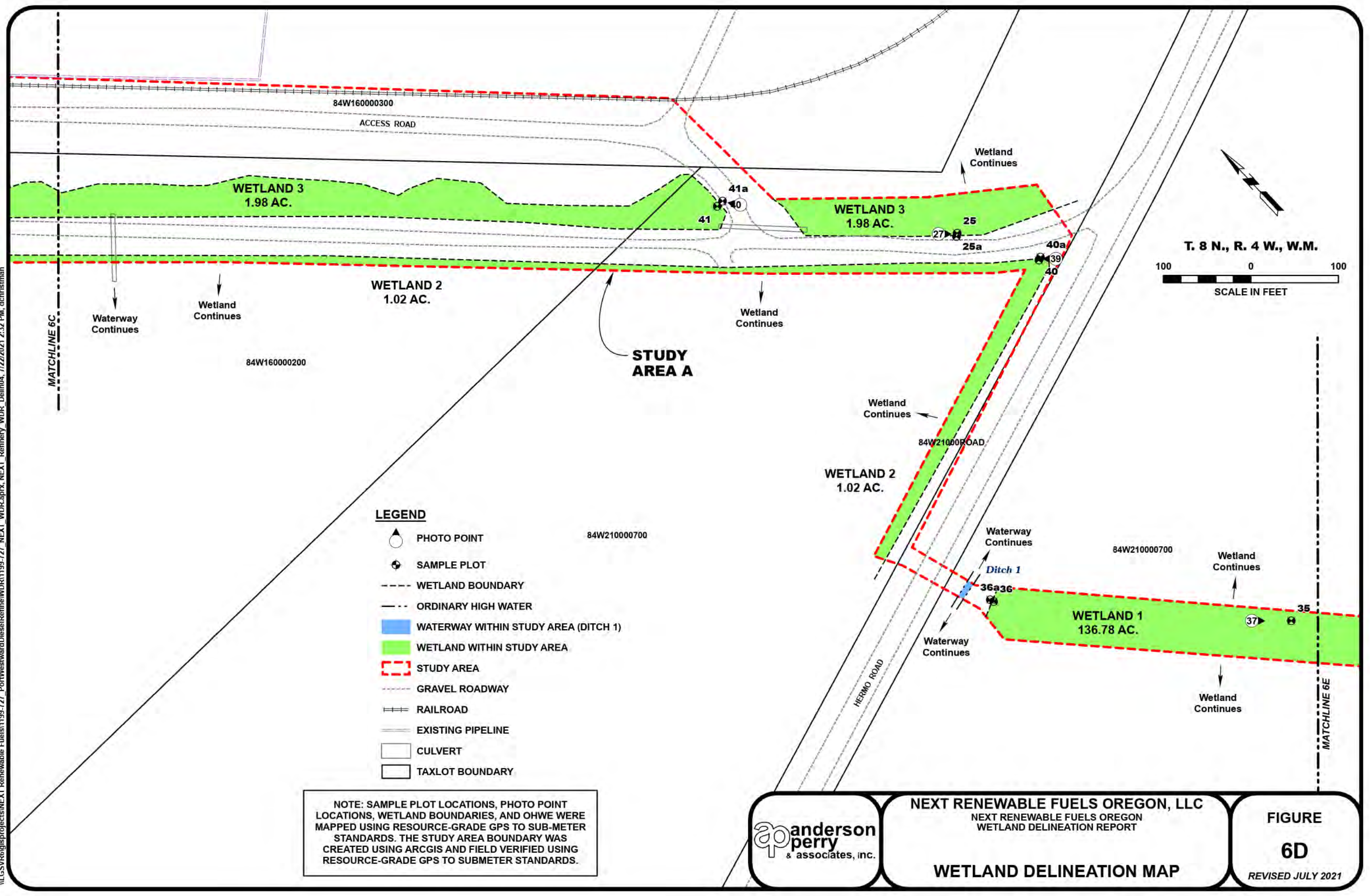
- LEGEND**
- PHOTO POINT
  - SAMPLE PLOT
  - WETLAND BOUNDARY
  - WETLAND WITHIN STUDY AREA
  - STUDY AREA
  - GRAVEL ROADWAY
  - RAILROAD
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	<p><b>NEXT RENEWABLE FUELS OREGON, LLC</b> NEXT RENEWABLE FUELS OREGON WETLAND DELINEATION REPORT</p>	<p><b>FIGURE</b> <b>6C</b></p>
	<p><b>WETLAND DELINEATION MAP</b></p>	
		<p>REVISED JULY 2021</p>



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- LEGEND**
- PHOTO POINT
  - SAMPLE PLOT
  - WETLAND BOUNDARY
  - ORDINARY HIGH WATER
  - WATERWAY WITHIN STUDY AREA (DITCH 1)
  - WETLAND WITHIN STUDY AREA
  - STUDY AREA
  - GRAVEL ROADWAY
  - RAILROAD
  - EXISTING PIPELINE
  - CULVERT
  - TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.

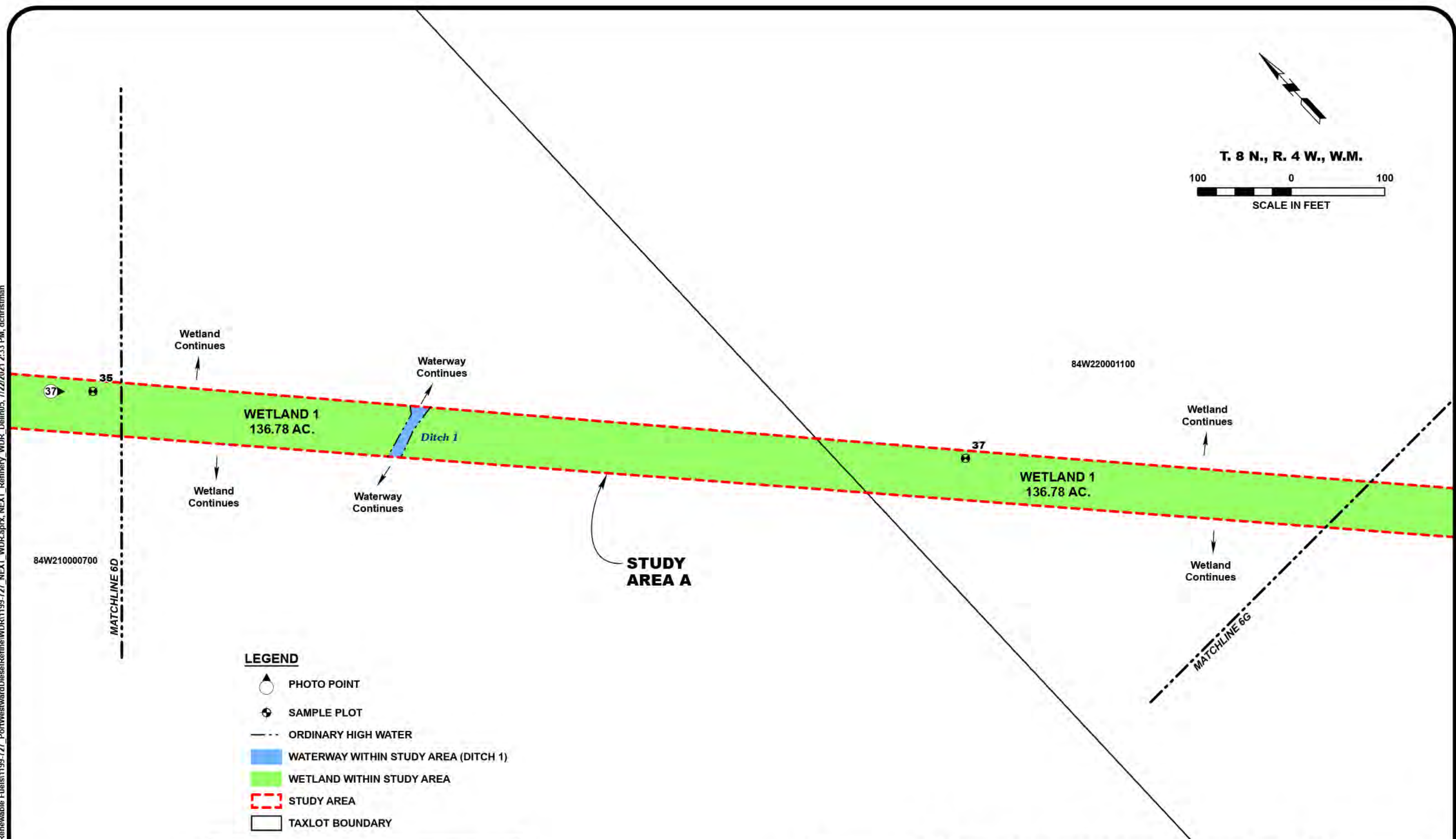
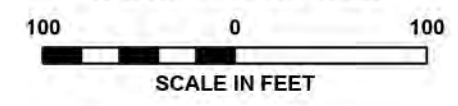
<p>anderson perry &amp; associates, inc.</p>	<p><b>NEXT RENEWABLE FUELS OREGON, LLC</b> NEXT RENEWABLE FUELS OREGON WETLAND DELINEATION REPORT</p>	<p><b>FIGURE 6D</b></p>
	<p><b>WETLAND DELINEATION MAP</b></p>	
	<p>REVISED JULY 2021</p>	



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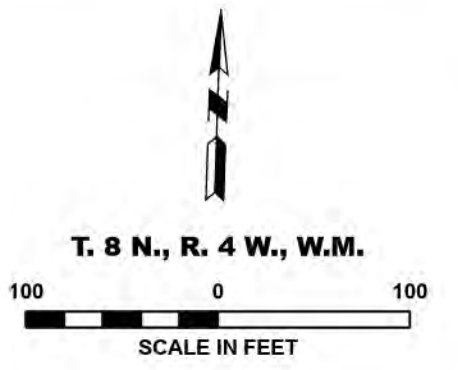
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- SAMPLE PLOT
- ORDINARY HIGH WATER
- WATERWAY WITHIN STUDY AREA (DITCH 1)
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.

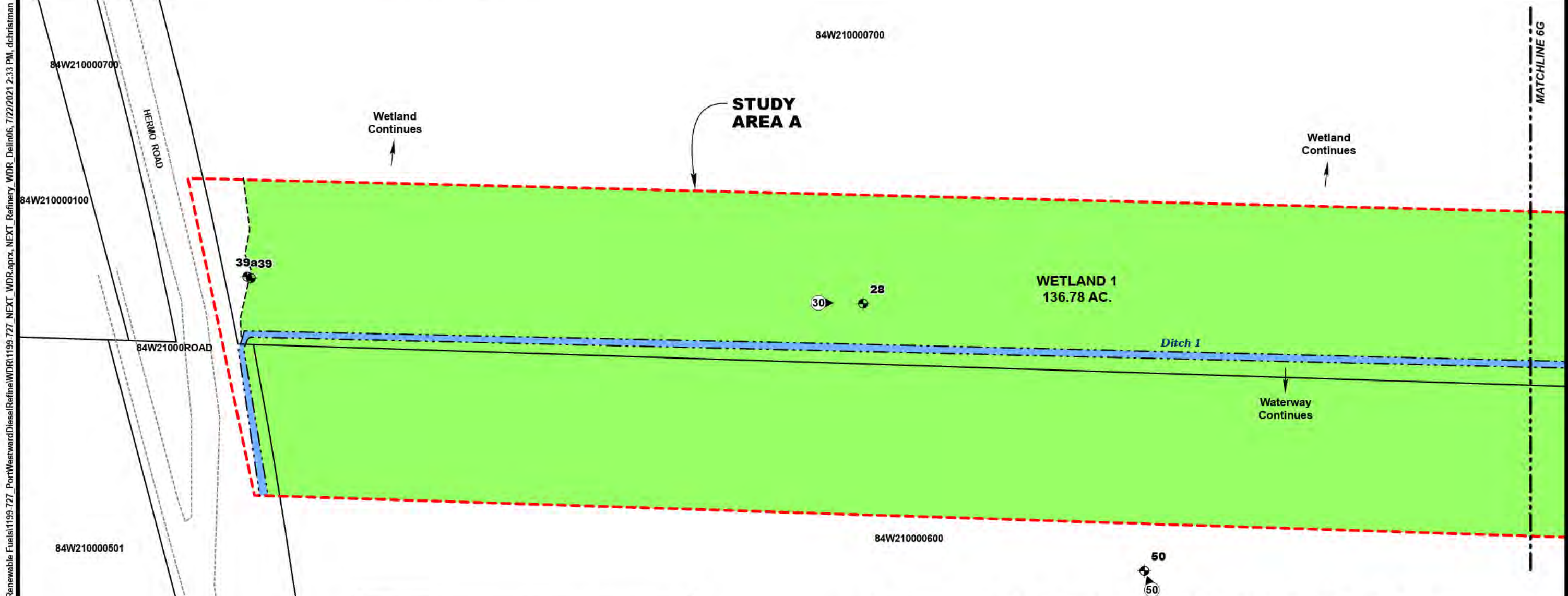
	<p><b>NEXT RENEWABLE FUELS OREGON, LLC</b> NEXT RENEWABLE FUELS OREGON WETLAND DELINEATION REPORT</p>	<p><b>FIGURE</b> <b>6E</b></p>
	<p><b>WETLAND DELINEATION MAP</b></p>	
	<p>REVISED JULY 2021</p>	

**LEGEND**

-  PHOTO POINT
-  SAMPLE PLOT
-  WETLAND BOUNDARY
-  ORDINARY HIGH WATER
-  WATERWAY WITHIN STUDY AREA (DITCH 1)
-  WETLAND WITHIN STUDY AREA
-  STUDY AREA
-  GRAVEL ROADWAY
-  TAXLOT BOUNDARY



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NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.










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 WETLAND DELINEATION REPORT

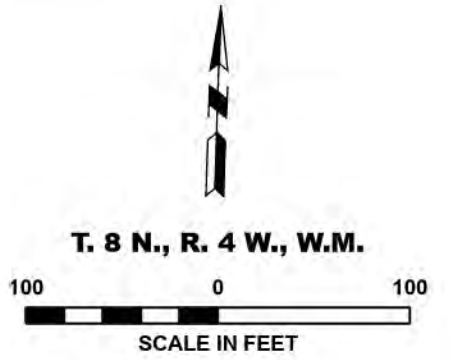
**WETLAND DELINEATION MAP**

**FIGURE 6F**  
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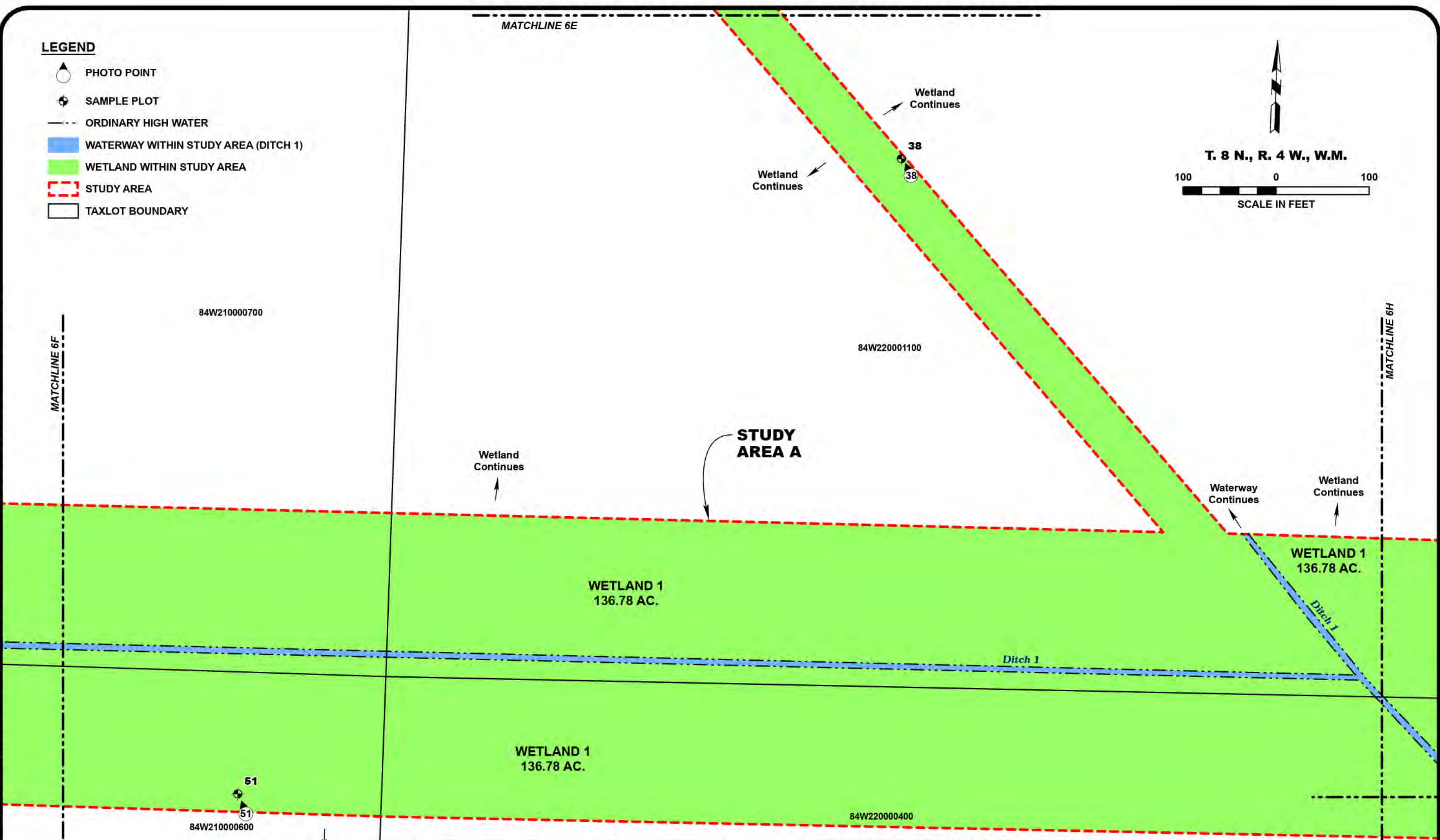


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-  PHOTO POINT
-  SAMPLE PLOT
-  ORDINARY HIGH WATER
-  WATERWAY WITHIN STUDY AREA (DITCH 1)
-  WETLAND WITHIN STUDY AREA
-  STUDY AREA
-  TAXLOT BOUNDARY



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NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.










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 WETLAND DELINEATION REPORT

**WETLAND DELINEATION MAP**

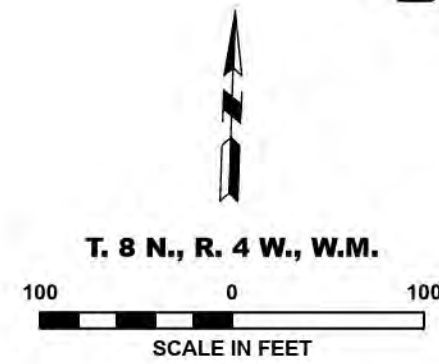
**FIGURE 6G**  
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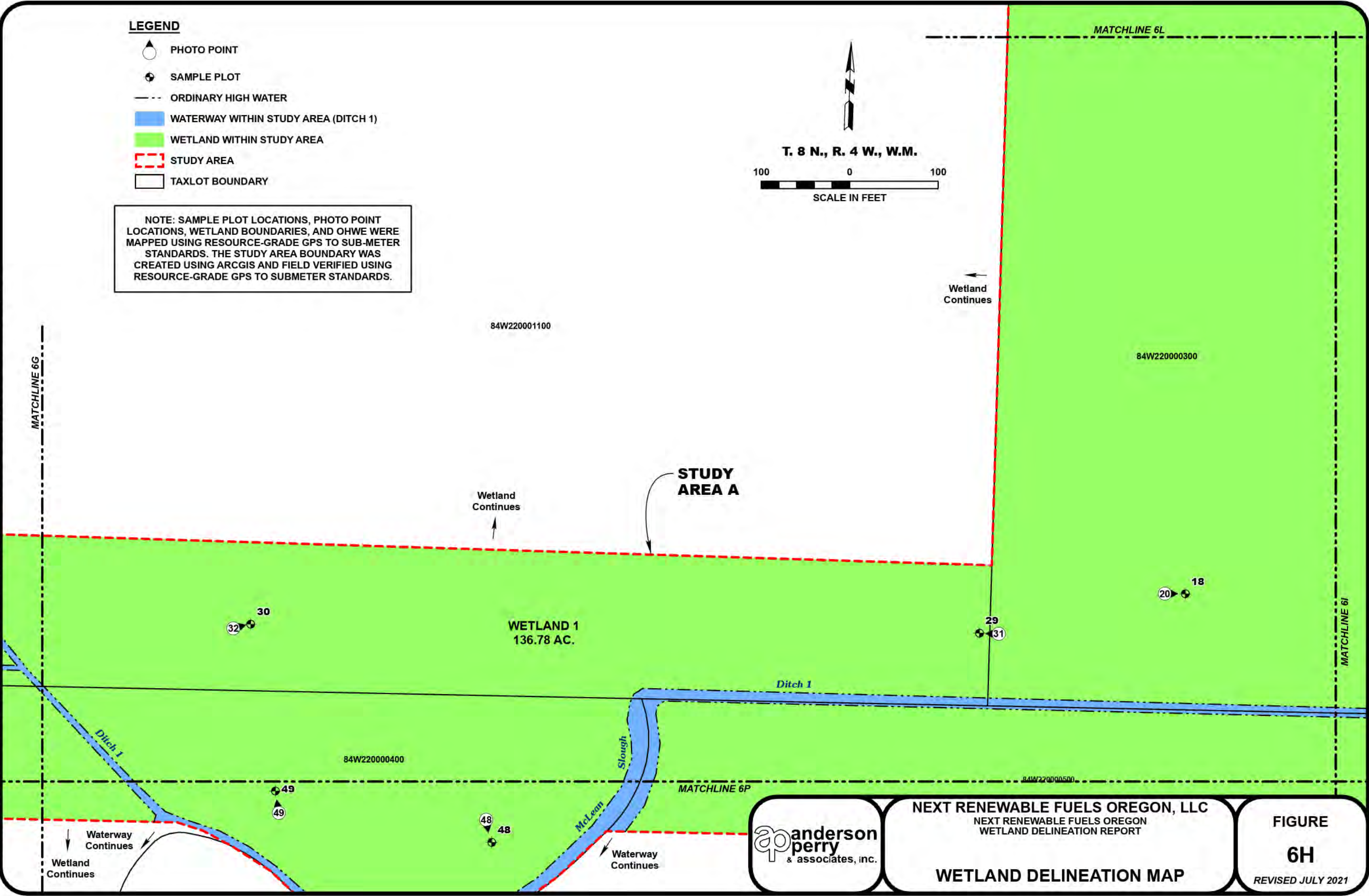
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-  SAMPLE PLOT
-  ORDINARY HIGH WATER
-  WATERWAY WITHIN STUDY AREA (DITCH 1)
-  WETLAND WITHIN STUDY AREA
-  STUDY AREA
-  TAXLOT BOUNDARY

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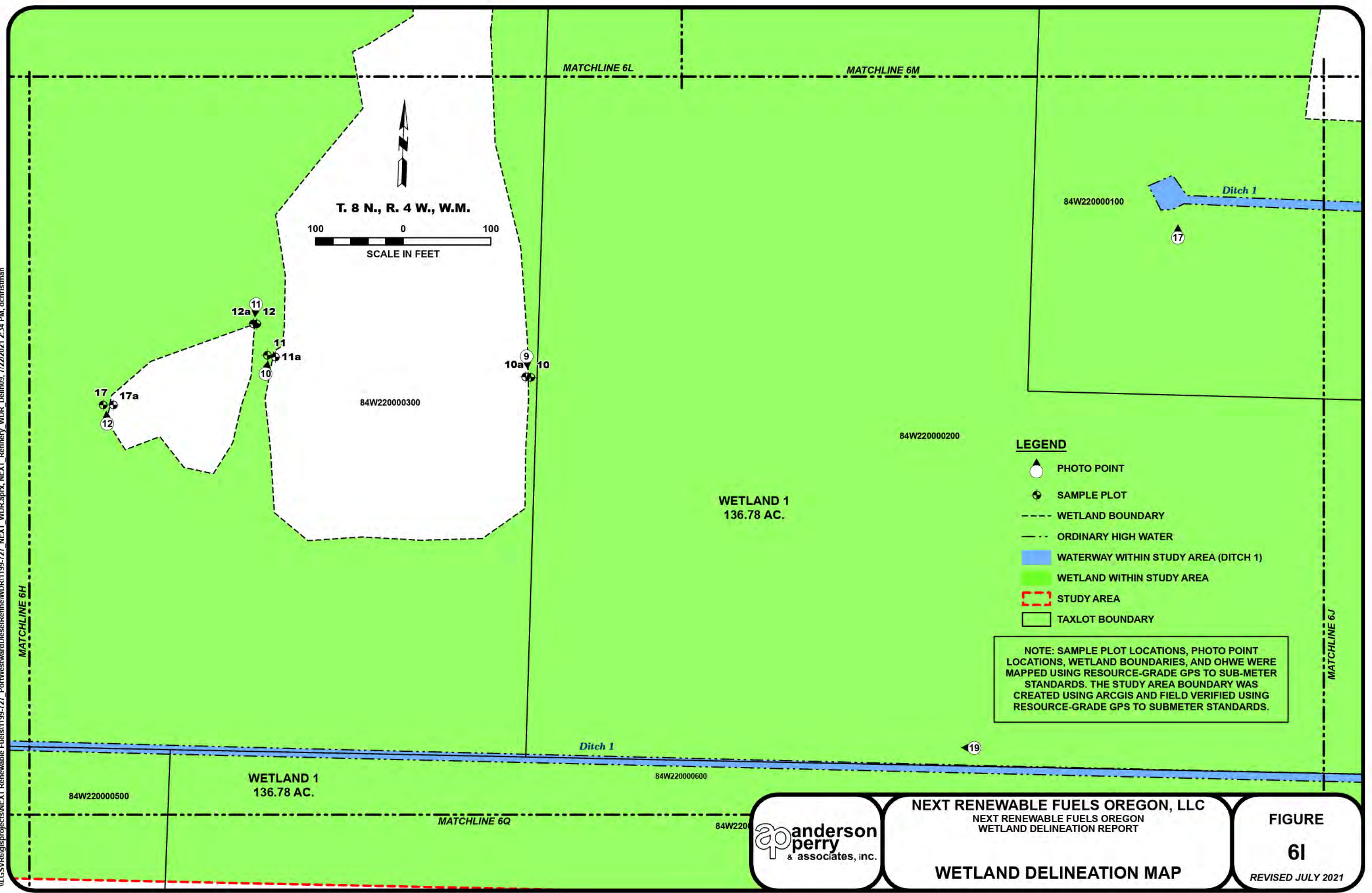
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 WETLAND DELINEATION REPORT

**WETLAND DELINEATION MAP**

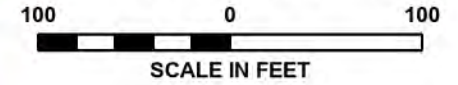
**FIGURE 6H**  
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T. 8 N., R. 4 W., W.M.



**LEGEND**

- PHOTO POINT
- SAMPLE PLOT
- WETLAND BOUNDARY
- ORDINARY HIGH WATER
- WATERWAY WITHIN STUDY AREA (DITCH 1)
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.



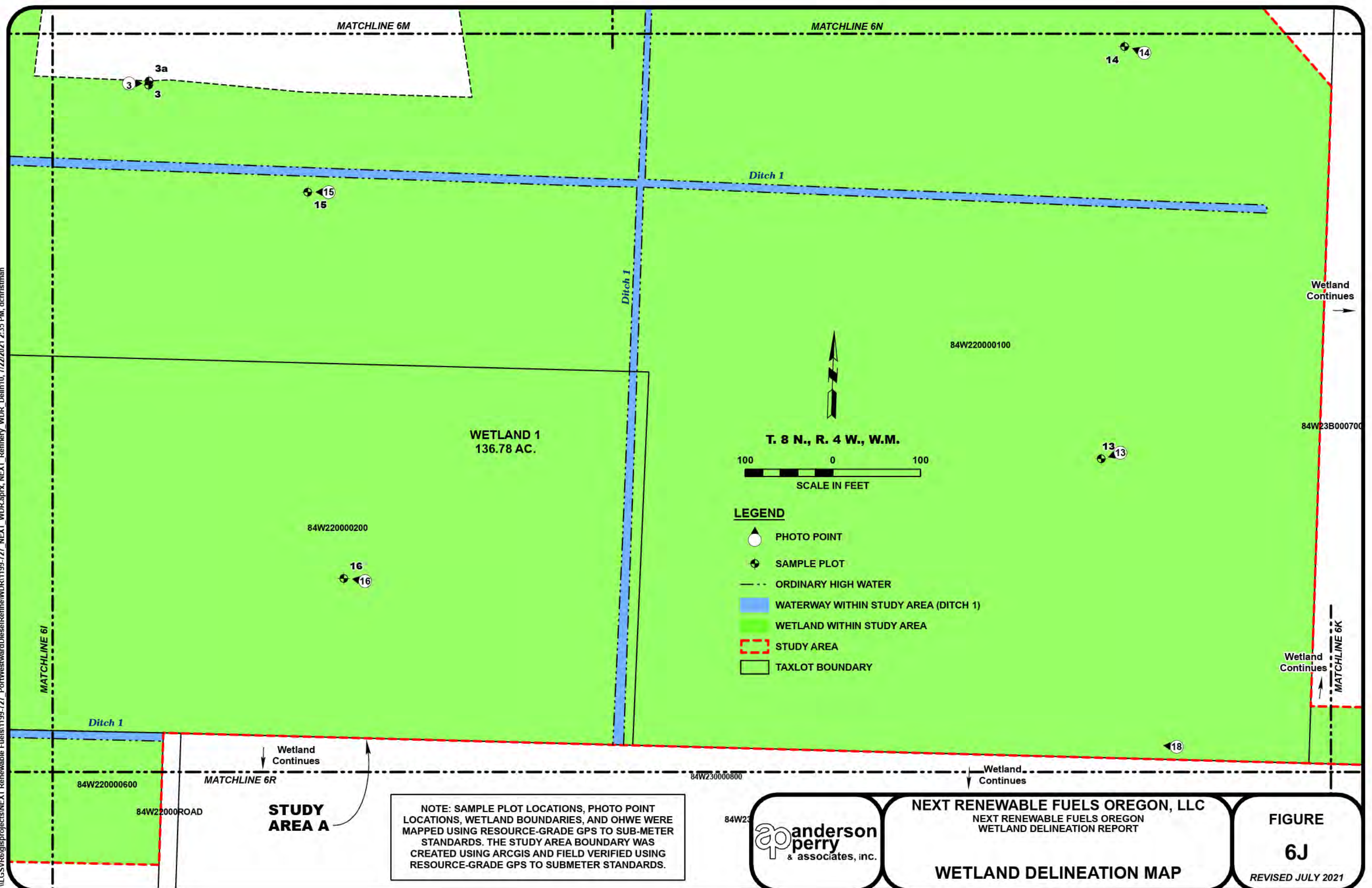
**NEXT RENEWABLE FUELS OREGON, LLC**  
 NEXT RENEWABLE FUELS OREGON  
 WETLAND DELINEATION REPORT

**WETLAND DELINEATION MAP**

**FIGURE**  
**6I**  
 REVISED JULY 2021



I:\GSR\GIS\projects\NEXT Renewable Fuels\1199-727\_PortWestwardDieselRefine\WDR\1199-727\_NEXT\_Refinery\_WDR.aprx, NEXT\_Refinery\_WDR.aprx, 7/22/2021 2:35 PM, dchristman



NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.



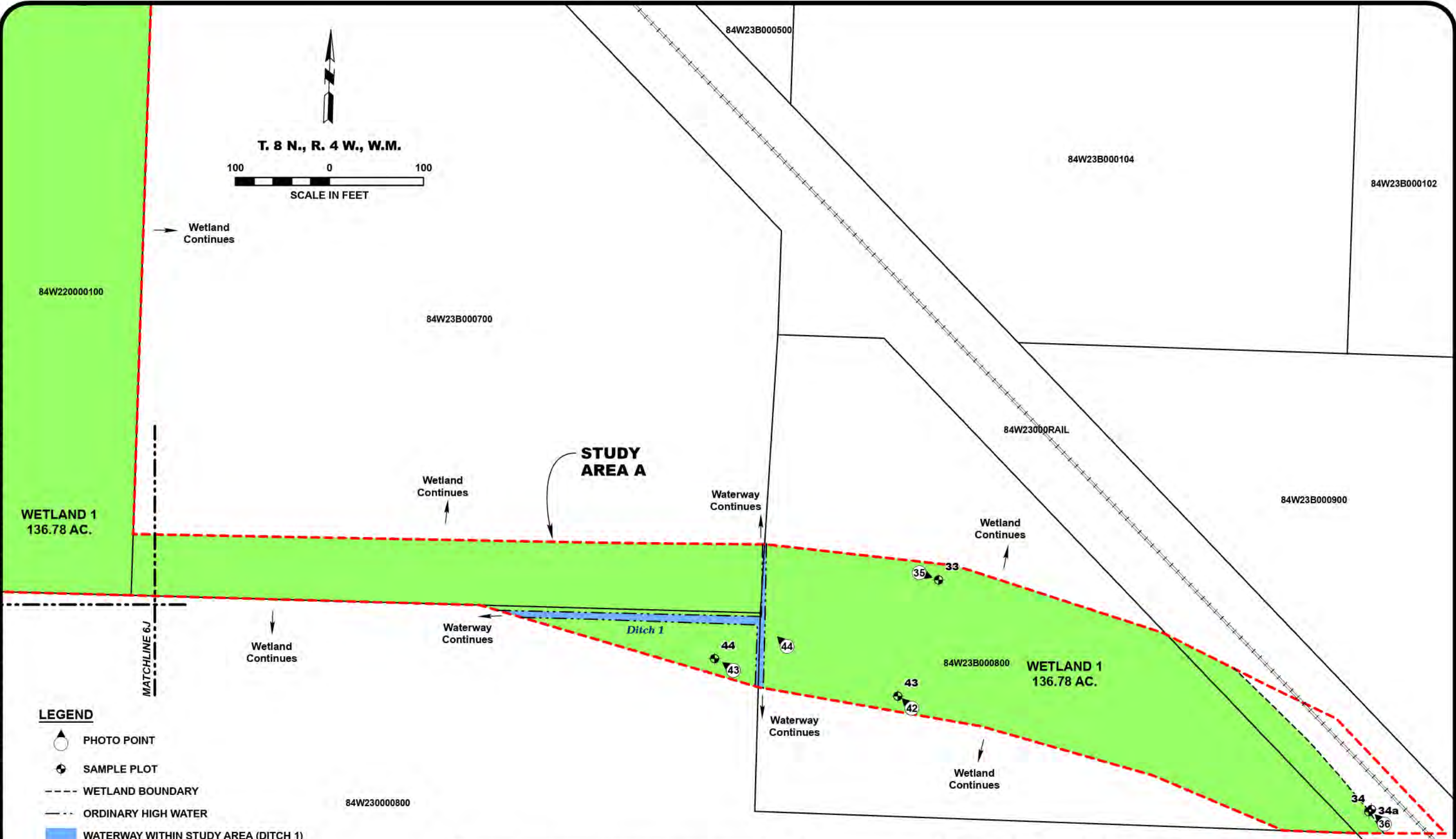
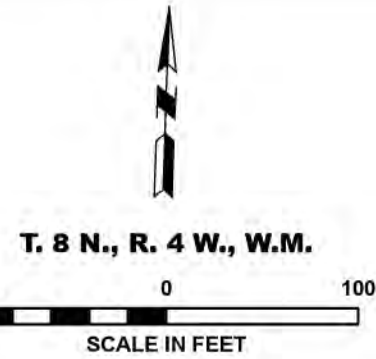
**NEXT RENEWABLE FUELS OREGON, LLC**  
 NEXT RENEWABLE FUELS OREGON  
 WETLAND DELINEATION REPORT

**WETLAND DELINEATION MAP**

**FIGURE 6J**  
 REVISED JULY 2021



\\LGSVR\GIS\projects\NEXT Renewable Fuels\1199-727\_PortWestwardDiesel\Refine\WDR\1199-727\_NEXT\_Refinery\_WDR.aprx, NEXT\_Refinery\_WDR\_Delimit11\_7/22/2021 2:35 PM, dchristman



**LEGEND**

- PHOTO POINT
- SAMPLE PLOT
- WETLAND BOUNDARY
- ORDINARY HIGH WATER
- WATERWAY WITHIN STUDY AREA (DITCH 1)
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- RAILROAD
- TAXLOT BOUNDARY

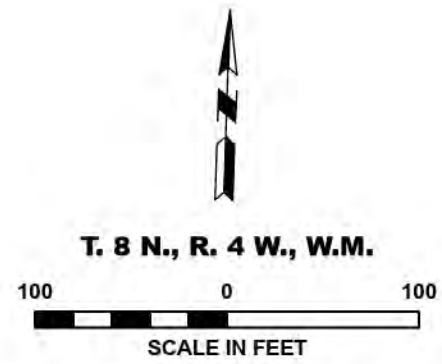
NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.



**NEXT RENEWABLE FUELS OREGON, LLC**  
NEXT RENEWABLE FUELS OREGON  
WETLAND DELINEATION REPORT  
**WETLAND DELINEATION MAP**

**FIGURE 6K**  
REVISED JULY 2021





NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.

84W220001100

Wetland Continues

**STUDY AREA A**

Wetland Continues

84W220000200

Wetland Continues

19  
21

WETLAND 1  
136.78 AC.

84W220000300

WETLAND 1  
136.78 AC.

**LEGEND**

- PHOTO POINT
- SAMPLE PLOT
- WETLAND BOUNDARY
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- TAXLOT BOUNDARY

MATCHLINE 6H

MATCHLINE 6I

MATCHLINE 6H  
MATCHLINE 6I

20  
22



**NEXT RENEWABLE FUELS OREGON, LLC**  
NEXT RENEWABLE FUELS OREGON  
WETLAND DELINEATION REPORT

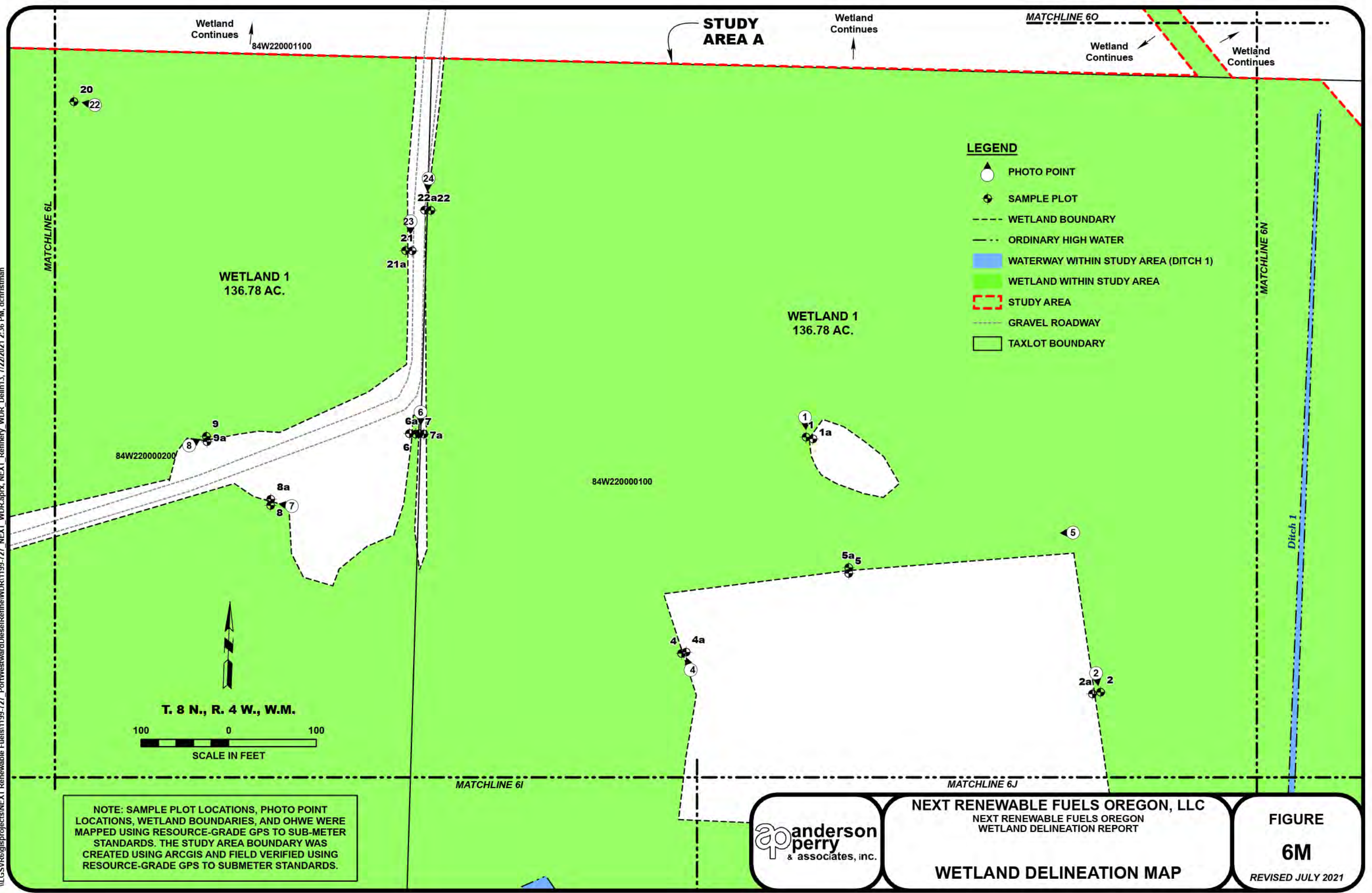
**WETLAND DELINEATION MAP**

**FIGURE 6L**  
REVISED JULY 2021

I:\GSR\GIS\Projects\NEXT Renewable Fuels\1199-727\_PortWestwardDiesel\Refine\WDR\1199-727\_NEXT\_Refinery\_WDR.aprx, NEXT\_Refinery\_WDR.aprx, 7/22/2021 2:36 PM, dchristman



\\ILGSR6\gis\projects\NEXT Renewable Fuels\1199-727\_PortWestwardDiesel\Refine\WDR\1199-727\_NEXT\_Refinery\_WDR.appx, NEXT\_Refinery\_WDR\_Delim13\_7/22/2021 2:36 PM, dchristman



Wetland Continues  
84W220001100

STUDY AREA A

Wetland Continues

MATCHLINE 6O

Wetland Continues

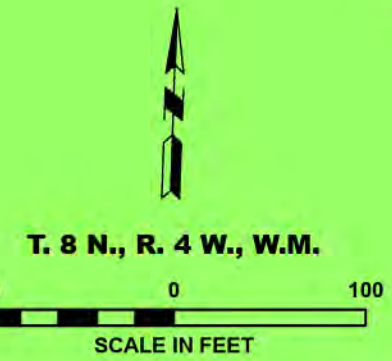
Wetland Continues

**LEGEND**

- PHOTO POINT
- SAMPLE PLOT
- WETLAND BOUNDARY
- ORDINARY HIGH WATER
- WATERWAY WITHIN STUDY AREA (DITCH 1)
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- GRAVEL ROADWAY
- TAXLOT BOUNDARY

WETLAND 1  
136.78 AC.

WETLAND 1  
136.78 AC.



NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.



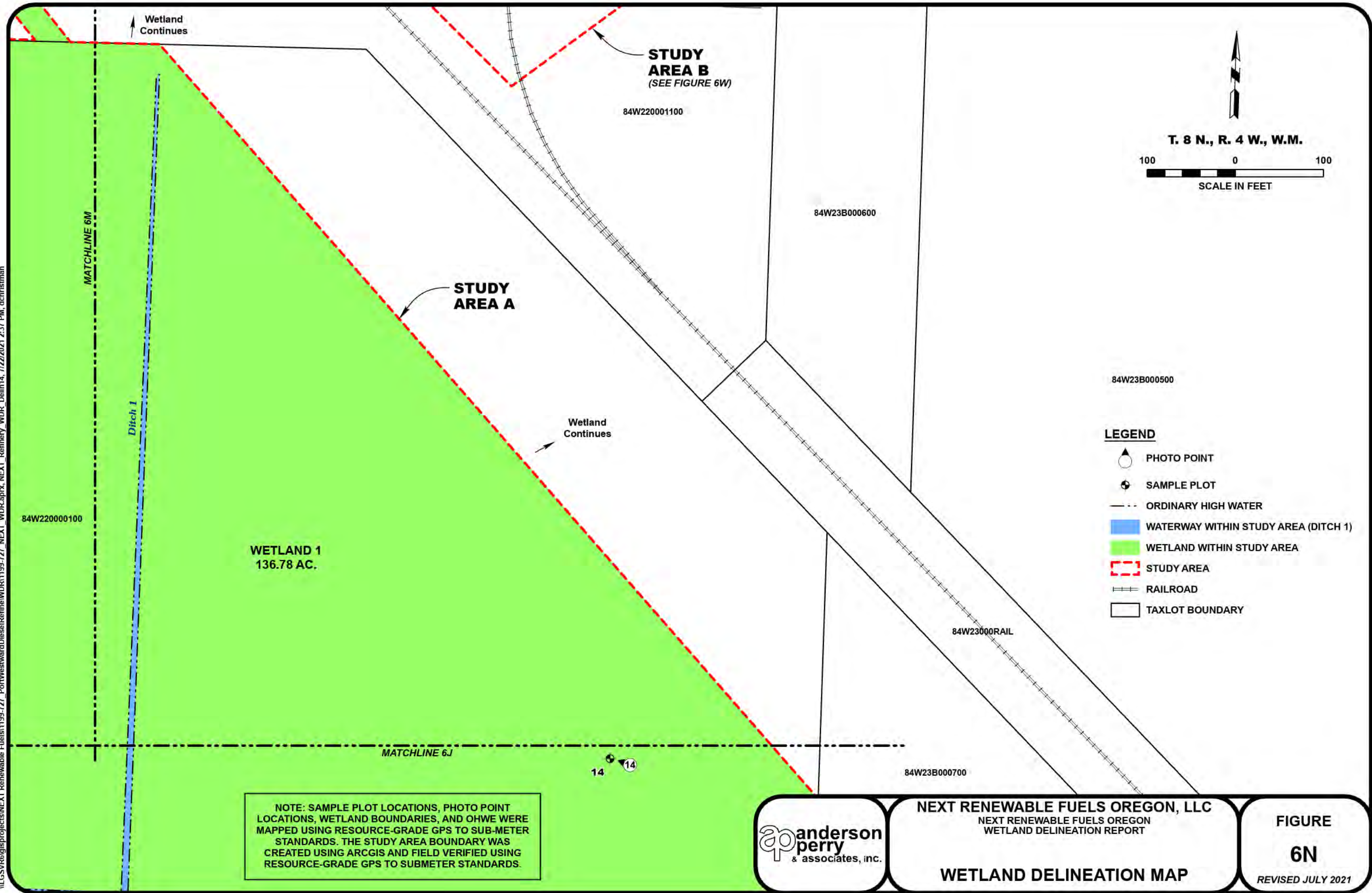
NEXT RENEWABLE FUELS OREGON, LLC  
NEXT RENEWABLE FUELS OREGON  
WETLAND DELINEATION REPORT

**WETLAND DELINEATION MAP**

FIGURE  
**6M**  
REVISED JULY 2021



I:\GSR\GIS\projects\NEXT Renewable Fuels\1199-727\_PortWestwardDiesel\Refine\WDR\1199-727\_NEXT\_Refinery\_WDR.aprx, NEXT\_Refinery\_WDR\_Deliv14\_7/22/2021 2:37 PM, dchristman



**NEXT RENEWABLE FUELS OREGON, LLC**  
NEXT RENEWABLE FUELS OREGON  
WETLAND DELINEATION REPORT

**WETLAND DELINEATION MAP**

**FIGURE 6N**

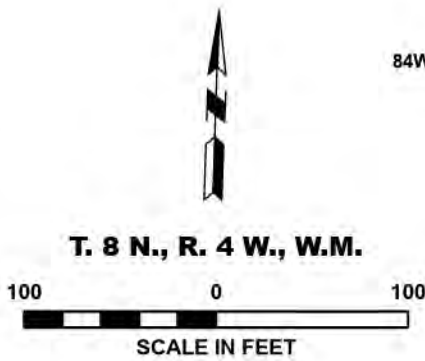
REVISED JULY 2021



**LEGEND**

-  PHOTO POINT
-  SAMPLE PLOT
-  WETLAND BOUNDARY
-  ORDINARY HIGH WATER
-  WATERWAY WITHIN STUDY AREA (DITCH 1)
-  WETLAND WITHIN STUDY AREA
-  STUDY AREA
-  GRAVEL ROADWAY
-  PAVED ROADWAY
-  RAILROAD
-  TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.



WETLAND 1  
136.78 AC.

Wetland Continues

2426  
24a

33  
31

STUDY AREA A

Wetland Continues

Wetland Continues

34  
32

Wetland Continues

MATCHLINE 6M

MATCHLINE 6N

20  
22

WETLAND 1  
136.78 AC.

84W220000200

WETLAND 1  
136.78 AC.

24

STUDY AREA B  
(SEE FIGURE 6W)

NEXT RENEWABLE FUELS OREGON, LLC  
NEXT RENEWABLE FUELS OREGON  
WETLAND DELINEATION REPORT

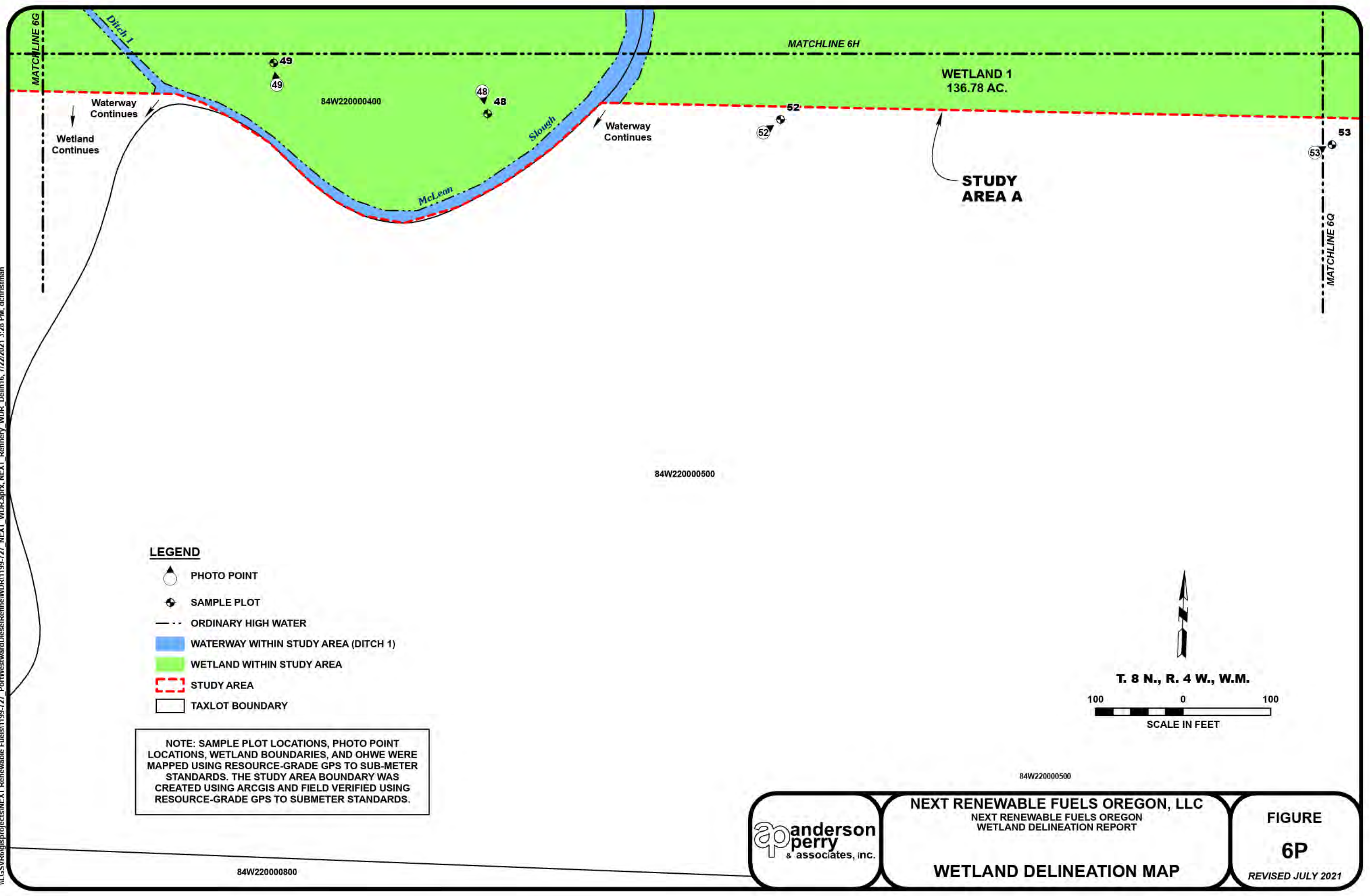
**WETLAND DELINEATION MAP**

**FIGURE 60**

REVISED JULY 2021

I:\GIS\Projects\NEXT Renewable Fuels\1199-727\_PortWestwardDiesel\Refine\WDR\1199-727\_NEXT\_Refinery\_WDR.aprx, NEXT\_Refinery\_WDR.aprx, 7/22/2021 2:37 PM, dchristman

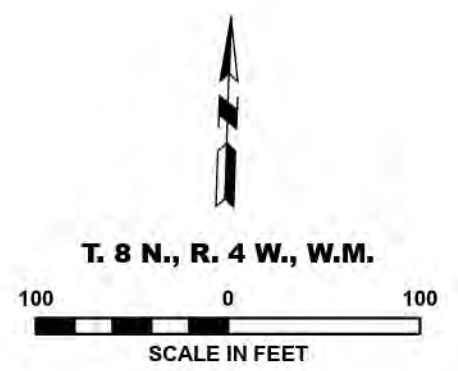
\\ILGSR6\gis\projects\NEXT Renewable Fuels\1199-727\_PortWestwardDiesel\Refine\WDR\1199-727\_NEXT\_WDR.aprx, NEXT\_Refinery\_WDR\_Deliv16\_7/22/2021 3:28 PM, dchristman



**LEGEND**

- PHOTO POINT
- SAMPLE PLOT
- ORDINARY HIGH WATER
- WATERWAY WITHIN STUDY AREA (DITCH 1)
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.



84W220000500



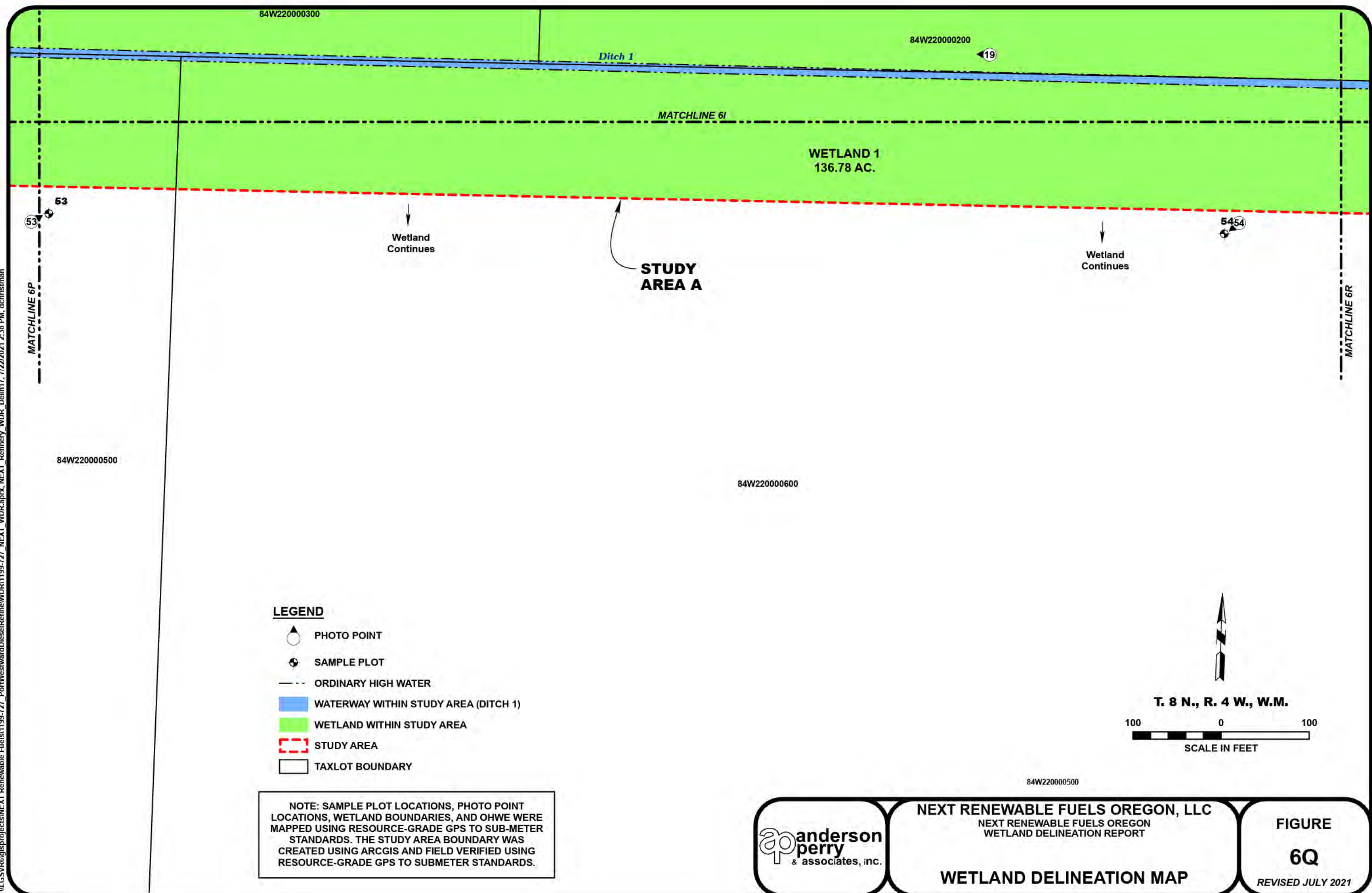
**NEXT RENEWABLE FUELS OREGON, LLC**  
NEXT RENEWABLE FUELS OREGON  
WETLAND DELINEATION REPORT  
**WETLAND DELINEATION MAP**

**FIGURE 6P**  
REVISED JULY 2021








84W220000800



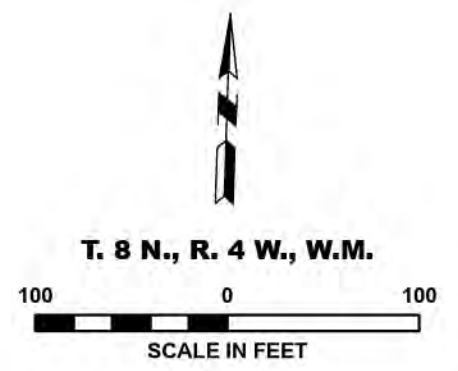
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**LEGEND**

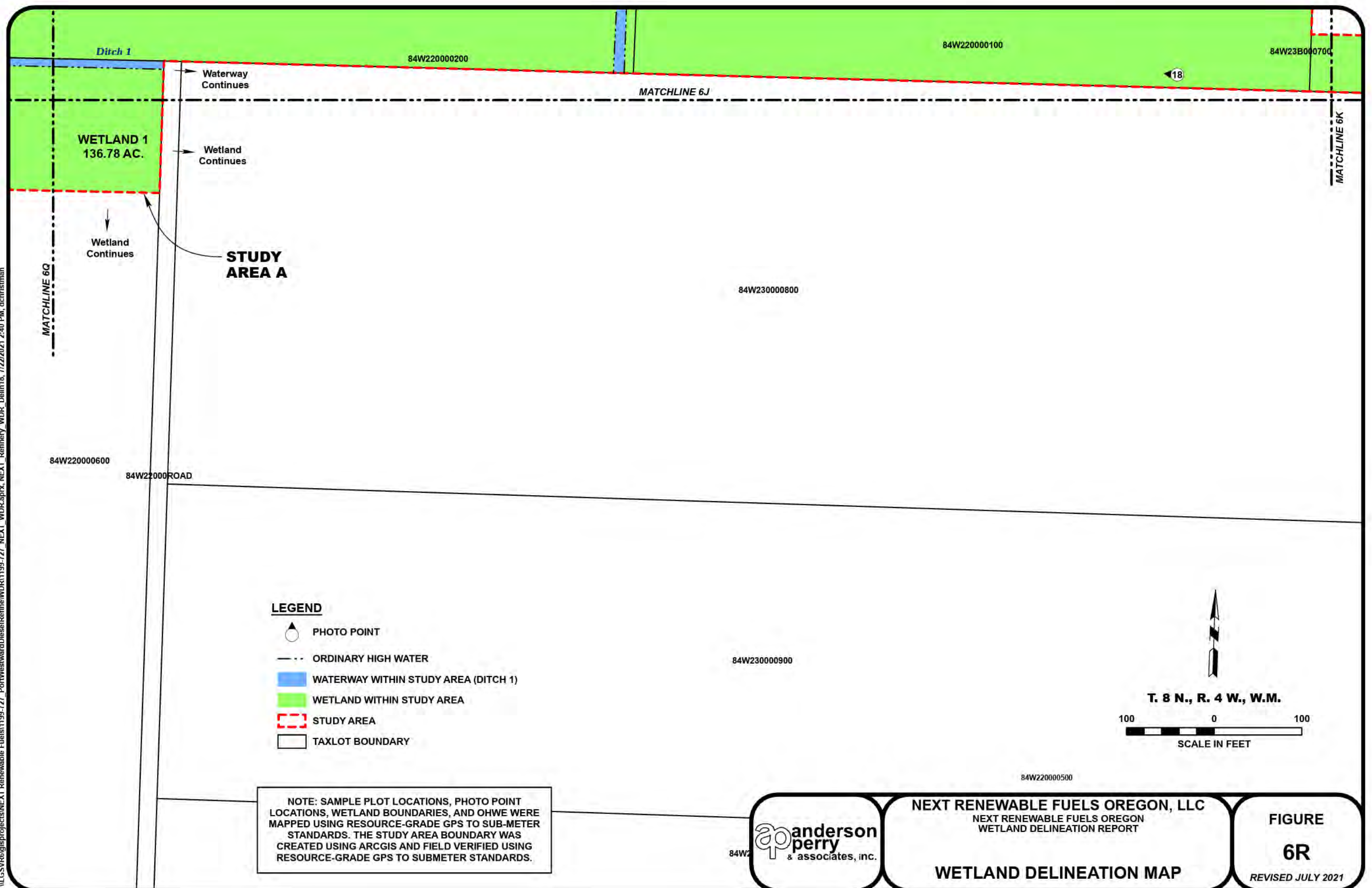
-  PHOTO POINT
-  SAMPLE PLOT
-  ORDINARY HIGH WATER
-  WATERWAY WITHIN STUDY AREA (DITCH 1)
-  WETLAND WITHIN STUDY AREA
-  STUDY AREA
-  TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.



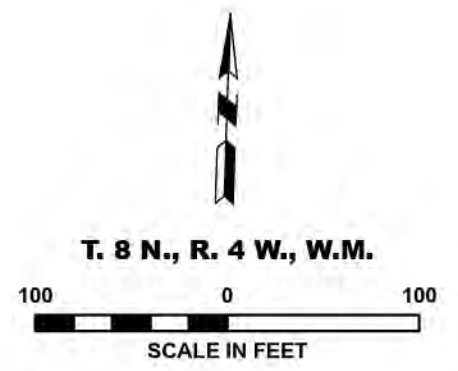
	<p><b>NEXT RENEWABLE FUELS OREGON, LLC</b>          NEXT RENEWABLE FUELS OREGON          WETLAND DELINEATION REPORT</p> <p><b>WETLAND DELINEATION MAP</b></p>	<p><b>FIGURE</b> <b>6Q</b> REVISED JULY 2021</p>
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\\GSR\GIS\projects\NEXT Renewable Fuels\1199-727\_PortWestwardDiesel\Refine\WDR\1199-727\_NEXT\_Refinery\_WDR.aprx, NEXT\_Refinery\_WDR.aprx, 7/22/2021 2:40 PM, dchristman



- LEGEND**
- PHOTO POINT
  - ORDINARY HIGH WATER
  - WATERWAY WITHIN STUDY AREA (DITCH 1)
  - WETLAND WITHIN STUDY AREA
  - STUDY AREA
  - TAXLOT BOUNDARY

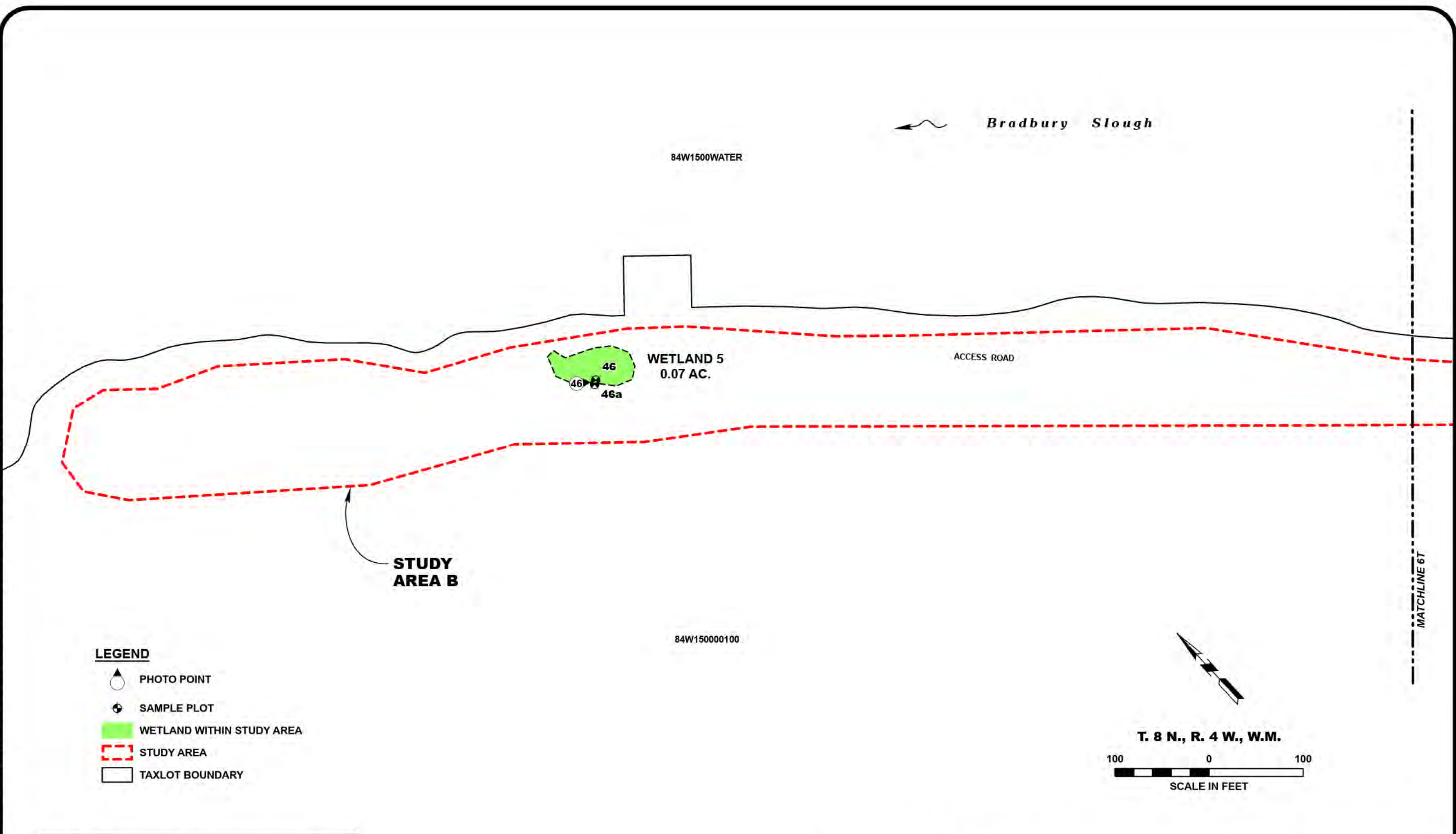
NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.



	<p><b>NEXT RENEWABLE FUELS OREGON, LLC</b>          NEXT RENEWABLE FUELS OREGON          WETLAND DELINEATION REPORT</p> <p><b>WETLAND DELINEATION MAP</b></p>	<p><b>FIGURE 6R</b></p> <p>REVISED JULY 2021</p>
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\\LGSVR6\gis\projects\NEXT Renewable Fuels\1199-727\_PortWestwardDiesel\Refine\WDR\1199-727\_NEXT\_Refinery\_WDR.aprx, NEXT\_Refinery\_WDR.aprx, 7/22/2021 2:45 PM, dchristman



- LEGEND**
- PHOTO POINT
  - SAMPLE PLOT
  - WETLAND WITHIN STUDY AREA
  - STUDY AREA
  - TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.

	<p><b>NEXT RENEWABLE FUELS OREGON, LLC</b> NEXT RENEWABLE FUELS OREGON WETLAND DELINEATION REPORT</p>	<p><b>FIGURE</b> <b>6S</b></p>
	<p><b>WETLAND DELINEATION MAP</b></p>	<p>REVISED JULY 2021</p>

\\GSRV\GIS\projects\NEXT Renewable Fuels\1199-727\_PortWestwardDiesel\Refine\WDR\1199-727\_NEXT\_WDR.aprx, NEXT\_Refinery\_WDR\_Deliv20\_7/22/2021 2:46 PM, dchristman

84W1500WATER



Bradbury Slough

STUDY AREA B

84W150000100



ACCESS ROAD

84W150000200

MATCHLINE 6S

MATCHLINE 6U

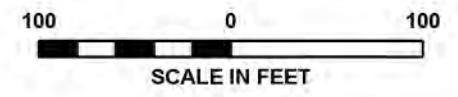
**LEGEND**

-  STUDY AREA
-  TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.



T. 8 N., R. 4 W., W.M.



**NEXT RENEWABLE FUELS OREGON, LLC**  
 NEXT RENEWABLE FUELS OREGON  
 WETLAND DELINEATION REPORT

**WETLAND DELINEATION MAP**

**FIGURE 6T**  
 REVISED JULY 2021



\\LGSVR6\gis\projects\NEXT Renewable Fuels\1199-727\_PortWestwardDiesel\Refine\WDR\1199-727\_NEXT\_WDR.aprx, NEXT\_Refinery\_WDR\_Delriv22\_7/22/2021 2:47 PM, dchristman

← Bradbury Slough

84W1500WATER

STUDY AREA B

ACCESS ROAD



84W150000100

84W150000200

MATCHLINE 6T

MATCHLINE 6V

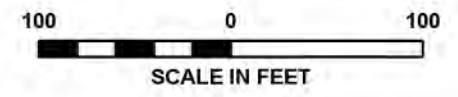
**LEGEND**

-  STUDY AREA
-  TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.



T. 8 N., R. 4 W., W.M.



**NEXT RENEWABLE FUELS OREGON, LLC**  
 NEXT RENEWABLE FUELS OREGON  
 WETLAND DELINEATION REPORT

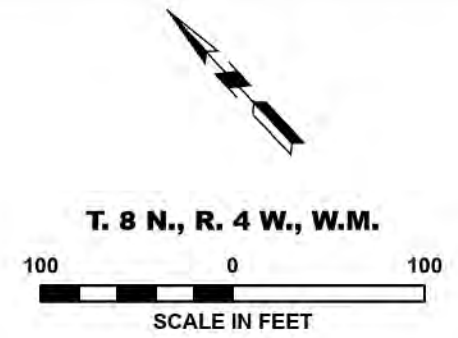
**WETLAND DELINEATION MAP**

**FIGURE 6U**  
 REVISED JULY 2021

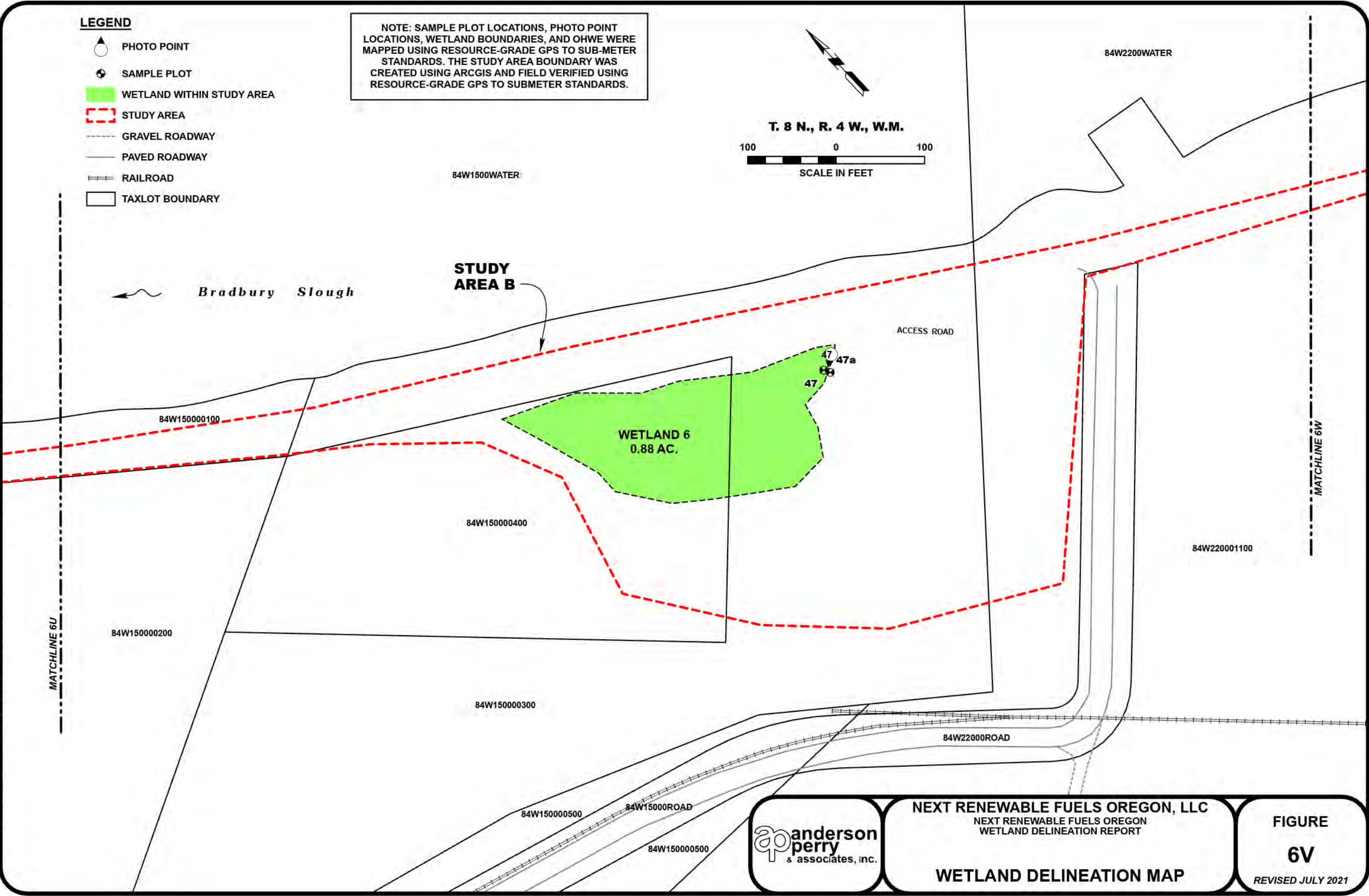
**LEGEND**

-  PHOTO POINT
-  SAMPLE PLOT
-  WETLAND WITHIN STUDY AREA
-  STUDY AREA
-  GRAVEL ROADWAY
-  PAVED ROADWAY
-  RAILROAD
-  TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.



I:\GIS\VR\GIS\projects\NEXT Renewable Fuels\1199-727\_PortWestwardDiesel\Refine\WDR\1199-727\_NEXT\_Refinery\_WDR.aprx, NEXT\_WDR.aprx, 7/22/2021 2:47 PM, dchristman

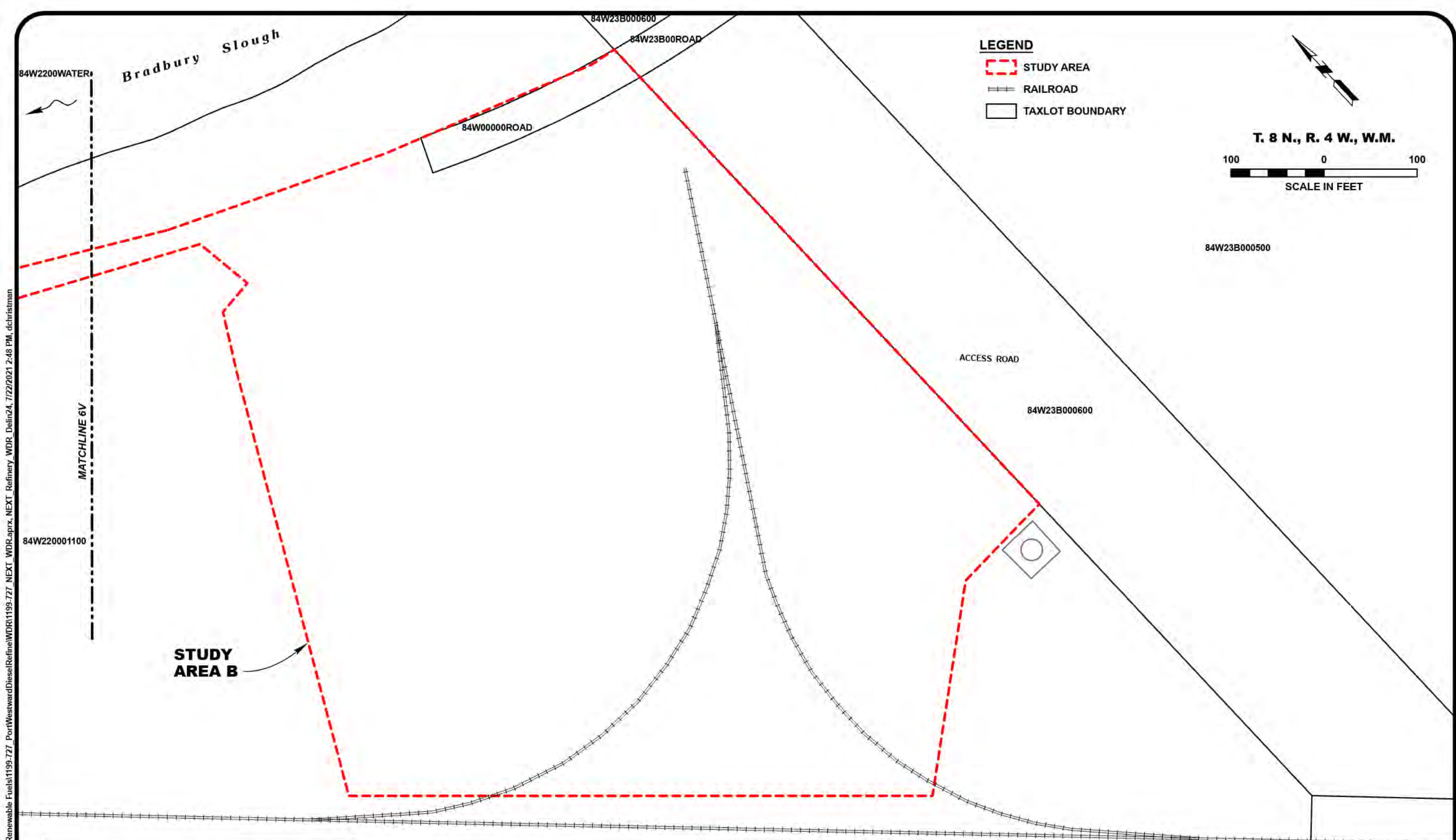


**NEXT RENEWABLE FUELS OREGON, LLC**  
 NEXT RENEWABLE FUELS OREGON  
 WETLAND DELINEATION REPORT

**WETLAND DELINEATION MAP**

**FIGURE 6V**  
 REVISED JULY 2021





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NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED USING RESOURCE-GRADE GPS TO SUBMETER STANDARDS.



**NEXT RENEWABLE FUELS OREGON, LLC**  
 NEXT RENEWABLE FUELS OREGON  
 WETLAND DELINEATION REPORT

**WETLAND DELINEATION MAP**

**FIGURE**  
**6W**  
 REVISED JULY 2021

**APPENDIX B**  
**Wetland Determination Data Forms**

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/27/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 1  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16743570 Long: -123.16026630 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa pratensis</u> 2. <u>Lolium perenne</u> 3. <u>Trifolium repens</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>80</u> <u>10</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FAC</u> <u>FAC</u> <u>FAC</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: grazed pasture				<b>Hydrophytic Vegetation Present?</b> <u>Yes</u>



**SOIL**

Sampling Point: 1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Sandy Clay Loam</u>	
6-16	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
<p><sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>	
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>Yes</u> (includes capillary fringe)	Depth (inches): Depth (inches): Depth (inches): <u>15</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/27/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 1a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16742900 Long: -123.16023350 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>300</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Lolium perenne</u> 2. <u>Poa palustris</u> 3. <u>Trifolium repens</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>40</u> <u>40</u> <u>20</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FAC</u> <u>FAC</u> <u>FAC</u>	Prevalence Index = B/A = <u>3.00</u>
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks: grazed pasture				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>



**SOIL**

Sampling Point: 1a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-9</u>	<u>10YR 4/3</u>	<u>100</u>		<u>0</u>			<u>Sandy Clay Loam</u>	
<u>9-17</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
<u>17-27</u>	<u>10YR 4/3</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>No</u></b>
Remarks:	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> (except MLRA 1,2,4A, and 4B) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)(LRR A) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)(LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>Yes</u> Depth (inches): <u>16</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 2  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16663920 Long: -123.15890510 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil  , or Hydrology   significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4.  Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>25</u> x 2 = <u>50</u> FAC species <u>80</u> x 3 = <u>240</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>105</u> (A) <u>290</u> (B)  Prevalence Index = B/A = <u>2.76</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5.  Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Lolium perenne</u> <u>30</u> <u>Yes</u> <u>FAC</u> 2. <u>Juncus balticus</u> <u>20</u> <u>Yes</u> <u>FACW</u> 3. <u>Rumex crispus</u> <u>20</u> <u>Yes</u> <u>FAC</u> 4. <u>Poa palustris</u> <u>30</u> <u>Yes</u> <u>FAC</u> 5. <u>Phalaris arundinacea</u> <u>5</u> <u>No</u> <u>FACW</u> 6. 7. 8. 9. 10. 11.  Total Cover = <u>105</u>				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2.  Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				
Remarks: grazed pasture				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>



**SOIL**

Sampling Point: 2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	
8-17	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/6</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>Yes</u> Depth (inches): <u>15</u> Saturation Present? <u>Yes</u> Depth (inches): <u>10</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 2a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16663530 Long: -123.15894310 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>No</u>
Hydric Soil Present? <u>No</u>	
Wetland Hydrology Present? <u>No</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>85</u> x 3 = <u>255</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>295</u> (B) Prevalence Index = B/A = <u>2.95</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Lolium perenne</u> <u>40</u> <u>Yes</u> <u>FAC</u> 2. <u>Poa palustris</u> <u>40</u> <u>Yes</u> <u>FAC</u> 3. <u>Rumex crispus</u> <u>5</u> <u>No</u> <u>FAC</u> 4. <u>Juncus balticus</u> <u>10</u> <u>No</u> <u>FACW</u> 5. <u>Cirsium arvense</u> <u>5</u> <u>No</u> <u>FACU</u> 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>				Hydrophytic Vegetation Indicators: ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> <u>Yes</u>
Remarks: grazed pasture				



**SOIL**

Sampling Point: 2a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-11</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Sandy Clay Loam</u>	
<u>11-18</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
<u>18-26</u>	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>No</u></b>
Remarks:	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> (except MLRA 1,2,4A, and 4B) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)(LRR A) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)(LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>Yes</u> Depth (inches): <u>20</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/27/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 3  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16620540 Long: -123.16026560 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: <u>  </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>  </u> (A) Total Number of Dominant Species Across All Strata: <u>  </u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>  </u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>  </u> Total % Cover of: <u>  </u> Multiply by: OBL species <u>20</u> x 1 = <u>20</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>50</u> x 3 = <u>150</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>230</u> (B) Prevalence Index = B/A = <u>2.30</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Lolium perenne</u> <u>20</u> <u>Yes</u> <u>FAC</u> 2. <u>Poa palustris</u> <u>30</u> <u>Yes</u> <u>FAC</u> 3. <u>Mentha x piperita</u> <u>10</u> <u>No</u> <u>FACW</u> 4. <u>Carex nebrascensis</u> <u>20</u> <u>Yes</u> <u>OBL</u> 5. <u>Juncus balticus</u> <u>20</u> <u>Yes</u> <u>FACW</u> 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>				Hydrophytic Vegetation Indicators: <u>  </u> 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> <u>Yes</u>
Remarks: grazed pasture				



**SOIL**

Sampling Point: 3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
7-16	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>14</u> Depth (inches): <u>9</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/27/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 3a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16621940 Long: -123.16026510 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>90</u> x 3 = <u>270</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>310</u> (B)  Prevalence Index = B/A = <u>3.10</u>
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Lolium perenne</u> 2. <u>Poa palustris</u> 3. <u>Matricaria discoidea</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>30</u> <u>60</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>No</u>	<u>FAC</u> <u>FAC</u> <u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% ___ 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks: grazed pasture				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>



**SOIL**

Sampling Point: 3a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-12</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Sandy Clay Loam</u>	<u>some gravel</u>
<u>12-18</u>	<u>10YR 3/2</u>	<u>99</u>	<u>10YR 4/4</u>	<u>1</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	
<u>18-25</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>No</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>22</u> Depth (inches): <u>19</u>
		<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/27/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 4  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16674800 Long: -123.16079500 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: __ )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4.  Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>40</u> x 3 = <u>120</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>80</u> (A) <u>240</u> (B)  Prevalence Index = B/A = <u>3.00</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5.  Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa palustris</u> 2. <u>Trifolium repens</u> 3. <u>Juncus balticus</u> 4. 5. 6. 7. 8. 9. 10. 11.  Total Cover = <u>80</u>	<u>40</u> <u>20</u> <u>20</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FAC</u> <u>FACU</u> <u>FACW</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2.  Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>20</u>				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks: grazed pasture				<b>Hydrophytic Vegetation Present?</b> <u>Yes</u>

**SOIL**

Sampling Point: 4

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
6-17	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): <u>0</u> Depth (inches): <u>0</u> Depth (inches): <u>14</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		



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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 4a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16675300 Long: -123.16077600 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>No</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: <u>  </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>50</u> x 3 = <u>150</u> FACU species <u>40</u> x 4 = <u>160</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>330</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa palustris</u> 2. <u>Juncus balticus</u> 3. <u>Trifolium repens</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>50</u> <u>10</u> <u>40</u>	<u>Yes</u> <u>No</u> <u>Yes</u>	<u>FAC</u> <u>FACW</u> <u>FACU</u>	Prevalence Index = B/A = <u>3.30</u>
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation ___ 2 – Dominance Test >50% ___ 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: grazed pasture				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present? <u>No</u></b>

**SOIL**

Sampling Point: 4a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	<u>10YR 3/3</u>	<u>100</u>					<u>Sandy Clay Loam</u>	
7-19	<u>10YR 3/2</u>	<u>100</u>					<u>Silty Clay Loam</u>	
19-26	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>No</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): <u>0</u> Water Table Present? <u>No</u> Depth (inches): <u>0</u> Saturation Present? <u>Yes</u> Depth (inches): <u>18</u> (includes capillary fringe)		<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/27/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 5  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16701940 Long: -123.16007280 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>80</u> x 3 = <u>240</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>280</u> (B) Prevalence Index = B/A = <u>2.80</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Lolium perenne</u> <u>30</u> <u>Yes</u> <u>FAC</u> 2. <u>Rumex crispus</u> <u>20</u> <u>Yes</u> <u>FAC</u> 3. <u>Poa palustris</u> <u>30</u> <u>Yes</u> <u>FAC</u> 4. <u>Juncus balticus</u> <u>20</u> <u>Yes</u> <u>FACW</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present? <u>Yes</u></b>
Remarks: grazed pasture				



**SOIL**

Sampling Point: 5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	<u>10YR 3/2</u>	<u>100</u>					<u>Silty Clay Loam</u>	
5-17	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>15</u> Depth (inches): <u>10</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/27/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 5a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16700440 Long: -123.16007180 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>95</u> x 3 = <u>285</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>295</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Lolium perenne</u> 2. <u>Poa palustris</u> 3. <u>Rumex crispus</u> 4. <u>Juncus balticus</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>40</u> <u>50</u> <u>5</u> <u>5</u>	<u>Yes</u> <u>Yes</u> <u>No</u> <u>No</u>	<u>FAC</u> <u>FAC</u> <u>FAC</u> <u>FACW</u>	Prevalence Index = B/A = <u>2.95</u>
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: grazed pasture				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 5a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-10</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Sandy Clay Loam</u>	
<u>10-18</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
<u>18-25</u>	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)  <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>No</u></b>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>Yes</u> Depth (inches): <u>18</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	



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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 6  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16738840 Long: -123.16203620 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>80</u> x 3 = <u>240</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>280</u> (B) Prevalence Index = B/A = <u>2.80</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Juncus balticus</u> 2. <u>Poa palustris</u> 3. <u>Agrostis capillaris</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>20</u> <u>50</u> <u>30</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>FAC</u> <u>FAC</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: grazed pasture				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 6

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	<u>10YR 3/2</u>	<u>0</u>		<u>0</u>			<u>Silty Clay Loam</u>	
8-17	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 5/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input checked="" type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): Depth (inches): <u>15</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 6a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16739080 Long: -123.16205380 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes
<b>Tree Stratum</b> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)
<b>Sapling/Shrub Stratum</b> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>80</u> x 3 = <u>240</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>90</u> (A) <u>260</u> (B)
<b>Herb Stratum</b> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Agrostis capillaris</u> 2. <u>Poa palustris</u> 3. <u>Juncus balticus</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>90</u>	<u>40</u> <u>40</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>No</u>	<u>FAC</u> <u>FAC</u> <u>FACW</u>	Prevalence Index = B/A = <u>2.89</u>
<b>Woody Vine Stratum</b> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: grazed pasture				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present? <u>Yes</u></b>



**SOIL**

Sampling Point: 6a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
9-15	<u>10YR 4/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
15-25	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>No</u></b>
Remarks:	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>Yes</u> Depth (inches): <u>19</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 7  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16739210 Long: -123.16201950 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes																					
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)																					
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: right;"><u>Total % Cover of:</u></td> <td style="text-align: right;"><u>Multiply by:</u></td> <td></td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 =</td> <td><u>0</u></td> </tr> <tr> <td>FACW species <u>30</u></td> <td>x 2 =</td> <td><u>60</u></td> </tr> <tr> <td>FAC species <u>70</u></td> <td>x 3 =</td> <td><u>210</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 =</td> <td><u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 =</td> <td><u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td></td> <td><u>270</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.70</u>	<u>Total % Cover of:</u>	<u>Multiply by:</u>		OBL species <u>0</u>	x 1 =	<u>0</u>	FACW species <u>30</u>	x 2 =	<u>60</u>	FAC species <u>70</u>	x 3 =	<u>210</u>	FACU species <u>0</u>	x 4 =	<u>0</u>	UPL species <u>0</u>	x 5 =	<u>0</u>	Column Totals: <u>100</u> (A)		<u>270</u> (B)
<u>Total % Cover of:</u>	<u>Multiply by:</u>																								
OBL species <u>0</u>	x 1 =	<u>0</u>																							
FACW species <u>30</u>	x 2 =	<u>60</u>																							
FAC species <u>70</u>	x 3 =	<u>210</u>																							
FACU species <u>0</u>	x 4 =	<u>0</u>																							
UPL species <u>0</u>	x 5 =	<u>0</u>																							
Column Totals: <u>100</u> (A)		<u>270</u> (B)																							
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Juncus balticus</u> 2. <u>Poa palustris</u> 3. <u>Agrostis capillaris</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>30</u> <u>50</u> <u>20</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>FAC</u> <u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																					
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																					
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>																					

**SOIL**

Sampling Point: 7

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
9-19	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>No</u> (includes capillary fringe)		Depth (inches): Depth (inches): Depth (inches): <u>16</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		



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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 7a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16739230 Long: -123.16199890 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: <u>  </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>90</u> x 3 = <u>270</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>290</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Agrostis capillaris</u> 2. <u>Poa palustris</u> 3. <u>Juncus balticus</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>40</u> <u>50</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>No</u>	<u>FAC</u> <u>FAC</u> <u>FACW</u>	Prevalence Index = B/A = <u>2.90</u>
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: grazed pasture				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 7a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
8-15	<u>10YR 4/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
15-26	<u>10YR 4/3</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>No</u></b>
Remarks:	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>No</u> Depth (inches): (includes capillary fringe)	<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 8  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16716800 Long: -123.16266800 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes																					
<b>Tree Stratum</b> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)																					
<b>Sapling/Shrub Stratum</b> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: right;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> <td></td> </tr> <tr> <td>OBL species <u>20</u></td> <td style="text-align: center;">x 1 =</td> <td><u>20</u></td> </tr> <tr> <td>FACW species <u>10</u></td> <td style="text-align: center;">x 2 =</td> <td><u>20</u></td> </tr> <tr> <td>FAC species <u>70</u></td> <td style="text-align: center;">x 3 =</td> <td><u>210</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td style="text-align: center;">x 4 =</td> <td><u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td style="text-align: center;">x 5 =</td> <td><u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td></td> <td><u>250</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.50</u>	<u>Total % Cover of:</u>	<u>Multiply by:</u>		OBL species <u>20</u>	x 1 =	<u>20</u>	FACW species <u>10</u>	x 2 =	<u>20</u>	FAC species <u>70</u>	x 3 =	<u>210</u>	FACU species <u>0</u>	x 4 =	<u>0</u>	UPL species <u>0</u>	x 5 =	<u>0</u>	Column Totals: <u>100</u> (A)		<u>250</u> (B)
<u>Total % Cover of:</u>	<u>Multiply by:</u>																								
OBL species <u>20</u>	x 1 =	<u>20</u>																							
FACW species <u>10</u>	x 2 =	<u>20</u>																							
FAC species <u>70</u>	x 3 =	<u>210</u>																							
FACU species <u>0</u>	x 4 =	<u>0</u>																							
UPL species <u>0</u>	x 5 =	<u>0</u>																							
Column Totals: <u>100</u> (A)		<u>250</u> (B)																							
<b>Herb Stratum</b> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Lolium perenne</u> <span style="float: right;"><u>30</u></span> 2. <u>Poa palustris</u> <span style="float: right;"><u>40</u></span> 3. <u>Carex nebrascensis</u> <span style="float: right;"><u>20</u></span> 4. <u>Juncus balticus</u> <span style="float: right;"><u>10</u></span> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>		<u>Yes</u> <u>Yes</u> <u>No</u> <u>No</u>	<u>FAC</u> <u>FAC</u> <u>OBL</u> <u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																					
<b>Woody Vine Stratum</b> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																					
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>																					



**SOIL**

Sampling Point: 8

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	<u>10YR 4/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
9-18	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): <u>0</u> Water Table Present? <u>No</u> Depth (inches): <u>0</u> Saturation Present? <u>No</u> Depth (inches): <u>0</u> (includes capillary fringe)		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 8a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16718700 Long: -123.16266700 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: <u>  </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>90</u> x 3 = <u>270</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>290</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa palustris</u> 2. <u>Lolium perenne</u> 3. <u>Juncus balticus</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>50</u> <u>40</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>No</u>	<u>FAC</u> <u>FAC</u> <u>FACW</u>	Prevalence Index = B/A = <u>2.90</u>
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: grazed pasture				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 8a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-12</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>				
<u>12-16</u>	<u>10YR 4/3</u>	<u>99</u>	<u>10YR 4/4</u>	<u>1</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	
<u>16-26</u>	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>No</u></b>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>No</u> (includes capillary fringe)	Depth (inches): <u>0</u> Depth (inches): <u>0</u> Depth (inches): <u>0</u> <b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	



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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 9  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16736210 Long: -123.16296360 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: <u>  </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>70</u> x 3 = <u>210</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>260</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa palustris</u> <u>40</u> <u>Yes</u> <u>FAC</u> 2. <u>Lolium perenne</u> <u>30</u> <u>Yes</u> <u>FAC</u> 3. <u>Juncus balticus</u> <u>20</u> <u>Yes</u> <u>FACW</u> 4. <u>Carex nebrascensis</u> <u>10</u> <u>No</u> <u>OBL</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>				Prevalence Index = B/A = <u>2.60</u>  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks: <u>grazed pasture</u>				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 9

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
7-18	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): Depth (inches): <u>15</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 9a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16734410 Long: -123.16296710 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: <u>  </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>90</u> x 3 = <u>270</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>290</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa palustris</u> 2. <u>Lolium perenne</u> 3. <u>Juncus balticus</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>50</u> <u>40</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FAC</u> <u>FAC</u> <u>FACW</u>	Prevalence Index = B/A = <u>2.90</u>
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: grazed pasture				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present? <u>Yes</u></b>



**SOIL**

Sampling Point: 9a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>18-27</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	
<u>0-11</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
<u>11-18</u>	<u>10YR 3/2</u>	<u>99</u>	<u>10YR 4/4</u>	<u>1</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>No</u></b>
Remarks:	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>Yes</u> Depth (inches): <u>19</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 10  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16533480 Long: -123.16423360 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil  , or Hydrology   significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>30</u> x 1 = <u>30</u> FACW species <u>60</u> x 2 = <u>120</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>180</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Juncus balticus</u> 2. <u>Carex nebrascensis</u> 3. <u>Phalaris arundinacea</u> 4. <u>Poa palustris</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>30</u> <u>30</u> <u>30</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u> <u>No</u>	<u>FACW</u> <u>OBL</u> <u>FACW</u> <u>FAC</u>	Prevalence Index = B/A = <u>1.80</u>  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks: grazed pasture				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 10

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
3-8	<u>10YR 3/2</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>4</u> Depth (inches): <u>0</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		





**SOIL**

Sampling Point: 10a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	<u>some gravel</u>
9-17	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	<u>some gravel</u>
17-26	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>No</u></b>
Remarks:	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>Yes</u> Depth (inches): <u>18</u> Saturation Present? <u>Yes</u> Depth (inches): <u>15</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 11  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16537380 Long: -123.16541730 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>70</u> x 3 = <u>210</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>270</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Juncus balticus</u> <u>20</u> <u>Yes</u> <u>FACW</u> 2. <u>Agrostis capillaris</u> <u>20</u> <u>Yes</u> <u>FAC</u> 3. <u>Rumex crispus</u> <u>10</u> <u>No</u> <u>FAC</u> 4. <u>Phalaris arundinacea</u> <u>10</u> <u>No</u> <u>FACW</u> 5. <u>Poa palustris</u> <u>40</u> <u>Yes</u> <u>FAC</u> 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>				Prevalence Index = B/A = <u>2.70</u>  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks: <u>grazed pasture</u>				<b>Hydrophytic Vegetation Present?</b> <u>Yes</u>



**SOIL**

Sampling Point: 11

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
4-13	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>13</u> Depth (inches): <u>9</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 11a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 2  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16537130 Long: -123.16540220 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification:  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes																					
<b>Tree Stratum</b> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)																					
<b>Sapling/Shrub Stratum</b> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> <table style="width:100%; border: none;"> <tr> <td style="text-align: right;"><u>Total % Cover of:</u></td> <td style="text-align: right;"><u>Multiply by:</u></td> <td></td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 =</td> <td><u>0</u></td> </tr> <tr> <td>FACW species <u>10</u></td> <td>x 2 =</td> <td><u>20</u></td> </tr> <tr> <td>FAC species <u>90</u></td> <td>x 3 =</td> <td><u>270</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 =</td> <td><u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 =</td> <td><u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td></td> <td><u>290</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.90</u>	<u>Total % Cover of:</u>	<u>Multiply by:</u>		OBL species <u>0</u>	x 1 =	<u>0</u>	FACW species <u>10</u>	x 2 =	<u>20</u>	FAC species <u>90</u>	x 3 =	<u>270</u>	FACU species <u>0</u>	x 4 =	<u>0</u>	UPL species <u>0</u>	x 5 =	<u>0</u>	Column Totals: <u>100</u> (A)		<u>290</u> (B)
<u>Total % Cover of:</u>	<u>Multiply by:</u>																								
OBL species <u>0</u>	x 1 =	<u>0</u>																							
FACW species <u>10</u>	x 2 =	<u>20</u>																							
FAC species <u>90</u>	x 3 =	<u>270</u>																							
FACU species <u>0</u>	x 4 =	<u>0</u>																							
UPL species <u>0</u>	x 5 =	<u>0</u>																							
Column Totals: <u>100</u> (A)		<u>290</u> (B)																							
<b>Herb Stratum</b> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa palustris</u> 2. <u>Agrostis capillaris</u> 3. <u>Juncus balticus</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>50</u> <u>40</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>No</u>	<u>FAC</u> <u>FAC</u> <u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																					
<b>Woody Vine Stratum</b> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																					
Remarks: grazed pasture				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>																					

**SOIL**

Sampling Point: 11a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
9-16	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
16-27	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>No</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1,2,4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)(LRR A) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)(LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>18</u> Depth (inches): <u>15</u>
		<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 12  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16546030 Long: -123.16546440 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: <u>  </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>20</u> x 1 = <u>20</u> FACW species <u>50</u> x 2 = <u>100</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>210</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Juncus balticus</u> <u>30</u> <u>Yes</u> <u>FACW</u> 2. <u>Poa palustris</u> <u>30</u> <u>Yes</u> <u>FAC</u> 3. <u>Phalaris arundinacea</u> <u>20</u> <u>Yes</u> <u>FACW</u> 4. <u>Carex nebrascensis</u> <u>20</u> <u>Yes</u> <u>OBL</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>				Prevalence Index = B/A = <u>2.10</u>  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks: <u>grazed pasture</u>				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>



**SOIL**

Sampling Point: 12

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-9</u>	<u>10YR 2/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input checked="" type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>Yes</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): <u>1</u> Depth (inches): <u>0</u> Depth (inches): <u>0</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		



**SOIL**

Sampling Point: 12a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
7-15	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
15-25	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>No</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)		
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)	Depth (inches): Depth (inches): <u>25</u> Depth (inches): <u>18</u>	<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 13  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16513670 Long: -123.15592500 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>20</u> x 1 = <u>20</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>50</u> x 3 = <u>150</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>250</u> (B) Prevalence Index = B/A = <u>2.50</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa palustris</u> <u>50</u> <u>Yes</u> <u>FAC</u> 2. <u>Juncus balticus</u> <u>20</u> <u>Yes</u> <u>FACW</u> 3. <u>Carex nebrascensis</u> <u>20</u> <u>Yes</u> <u>OBL</u> 4. <u>Cirsium arvense</u> <u>10</u> <u>No</u> <u>FACU</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> <u>Yes</u>
Remarks: grazed pasture				



**SOIL**

Sampling Point: 13

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-13</u>	<u>10YR 4/2</u>	<u>93</u>	<u>10YR 4/6</u>	<u>7</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>13</u> Depth (inches): <u>9</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 14  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16642180 Long: -123.15588130 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>90</u> x 3 = <u>270</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>310</u> (B) Prevalence Index = B/A = <u>3.10</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Lolium perenne</u> <u>30</u> <u>Yes</u> <u>FAC</u> 2. <u>Poa palustris</u> <u>30</u> <u>Yes</u> <u>FAC</u> 3. <u>Alopecurus pratensis</u> <u>30</u> <u>Yes</u> <u>FAC</u> 4. <u>Trifolium repens</u> <u>10</u> <u>No</u> <u>FACU</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% ___ 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present? <u>Yes</u></b>
Remarks: grazed pasture				

**SOIL**

Sampling Point: 14

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	<u>10YR 4/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
3-15	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>15</u> Depth (inches): <u>10</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 15  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16587950 Long: -123.15952840 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>80</u> x 3 = <u>240</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>280</u> (B) Prevalence Index = B/A = <u>2.80</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Lolium perenne</u> <u>30</u> <u>Yes</u> <u>FAC</u> 2. <u>Poa palustris</u> <u>30</u> <u>Yes</u> <u>FAC</u> 3. <u>Juncus balticus</u> <u>20</u> <u>Yes</u> <u>FACW</u> 4. <u>Rumex crispus</u> <u>20</u> <u>Yes</u> <u>FAC</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> <u>Yes</u>
Remarks: grazed pasture				



**SOIL**

Sampling Point: 15

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	<u>10YR 4/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
4-15	<u>10YR 4/2</u>	<u>93</u>	<u>10YR 4/6</u>	<u>7</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	
15-25	<u>10YR 4/2</u>	<u>98</u>	<u>10YR 4/6</u>	<u>2</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): Depth (inches): <u>19</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 16  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16468080 Long: -123.15931710 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>200</u> (B)  Prevalence Index = B/A = <u>2.00</u>
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FACW</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks: grazed pasture				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 16

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-13	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	<u>5% of redox in root channels</u>
13-18	<u>10YR 4/2</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)  <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2)                      ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>Yes</u> Depth (inches): <u>17</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 17  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16520210 Long: -123.16614910 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>40</u> x 2 = <u>80</u> FAC species <u>40</u> x 3 = <u>120</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>280</u> (B) Prevalence Index = B/A = <u>2.80</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa palustris</u> 2. <u>Juncus balticus</u> 3. <u>Phalaris arundinacea</u> 4. <u>Trifolium repens</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>40</u> <u>20</u> <u>20</u> <u>20</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FAC</u> <u>FACW</u> <u>FACW</u> <u>FACU</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: grazed pasture				<b>Hydrophytic Vegetation Present?</b> <u>Yes</u>



**SOIL**

Sampling Point: 17

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
4-16	<u>10YR 3/2</u>	<u>95</u> <u>0</u>	<u>10YR 4/6</u>	<u>5</u> <u>0</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)  <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)  <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>Yes</u> Depth (inches): <u>15</u> Saturation Present? <u>Yes</u> Depth (inches): <u>10</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 17a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16520500 Long: -123.16612840 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes																					
<b>Tree Stratum</b> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)																					
<b>Sapling/Shrub Stratum</b> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: right;"><u>Total % Cover of:</u></td> <td style="text-align: right;"><u>Multiply by:</u></td> <td></td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 =</td> <td><u>0</u></td> </tr> <tr> <td>FACW species <u>30</u></td> <td>x 2 =</td> <td><u>60</u></td> </tr> <tr> <td>FAC species <u>60</u></td> <td>x 3 =</td> <td><u>180</u></td> </tr> <tr> <td>FACU species <u>10</u></td> <td>x 4 =</td> <td><u>40</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 =</td> <td><u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td></td> <td><u>280</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.80</u>	<u>Total % Cover of:</u>	<u>Multiply by:</u>		OBL species <u>0</u>	x 1 =	<u>0</u>	FACW species <u>30</u>	x 2 =	<u>60</u>	FAC species <u>60</u>	x 3 =	<u>180</u>	FACU species <u>10</u>	x 4 =	<u>40</u>	UPL species <u>0</u>	x 5 =	<u>0</u>	Column Totals: <u>100</u> (A)		<u>280</u> (B)
<u>Total % Cover of:</u>	<u>Multiply by:</u>																								
OBL species <u>0</u>	x 1 =	<u>0</u>																							
FACW species <u>30</u>	x 2 =	<u>60</u>																							
FAC species <u>60</u>	x 3 =	<u>180</u>																							
FACU species <u>10</u>	x 4 =	<u>40</u>																							
UPL species <u>0</u>	x 5 =	<u>0</u>																							
Column Totals: <u>100</u> (A)		<u>280</u> (B)																							
<b>Herb Stratum</b> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa palustris</u> 2. <u>Juncus balticus</u> 3. <u>Phalaris arundinacea</u> 4. <u>Trifolium repens</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>60</u> <u>10</u> <u>20</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u> <u>No</u>	<u>FAC</u> <u>FACW</u> <u>FACW</u> <u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																					
<b>Woody Vine Stratum</b> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																					
Remarks: grazed pasture				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>																					

**SOIL**

Sampling Point: 17a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
7-15	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
15-25	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>No</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)		
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>Yes</u> Depth (inches): <u>17</u> (includes capillary fringe)		<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 18  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16448470 Long: -123.16712220 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>200</u> (B)  Prevalence Index = B/A = <u>2.00</u>
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FACW</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>



**SOIL**

Sampling Point: 18

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-15</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>15</u> Depth (inches): <u>10</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 19  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16679000 Long: -123.16670700 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1C  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: __ )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4.  Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>105</u> x 3 = <u>315</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>105</u> (A) <u>315</u> (B)  Prevalence Index = B/A = <u>3.00</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> ) 1. <u>Populus balsamifera</u> 2. 3. 4. 5.  Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FAC</u>	
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa palustris</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.  Total Cover = <u>5</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> __ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> __ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) __ 5 – Wetland Non-Vascular Plants <sup>1</sup> __ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2.  Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>95</u>				
Remarks:				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> <u>Yes</u>

**SOIL**

Sampling Point: 19

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	<u>10YR 2/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
3-18	<u>10YR 2/1</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): <u>0</u> Depth (inches): <u>9</u> Depth (inches): <u>4</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery

City/County: Columbia

Sampling Date: 11/29/2018

Applicant/Owner: Next Energy Group, Inc. State: OR

Sampling Point: 20

Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16

Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16840620 Long: -123.16359980 Datum: WGS84

Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1C

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)

Are Vegetation X, Soil   , or Hydrology    significantly disturbed?

Are "Normal Circumstances" present? Yes

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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: <u>  </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>  </u> (A)  Total Number of Dominant Species Across All Strata: <u>  </u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>  </u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4.  Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>  </u> Total % Cover of: <u>  </u> Multiply by: OBL species <u>  </u> x 1 = <u>  </u> FACW species <u>  </u> x 2 = <u>  </u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>  </u> x 4 = <u>  </u> UPL species <u>  </u> x 5 = <u>  </u> Column Totals: <u>100</u> (A) <u>300</u> (B)  Prevalence Index = B/A = <u>3.00</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5.  Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa palustris</u> 2. <u>Alopecurus pratensis</u> 3. 4. 5. 6. 7. 8. 9. 10. 11.  Total Cover = <u>100</u>	<u>50</u> <u>50</u>	<u>Yes</u> <u>Yes</u>	<u>FAC</u> <u>FAC</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2.  Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks: grazed pasture				<b>Hydrophytic Vegetation Present?</b> <u>Yes</u>



**SOIL**

Sampling Point: 20

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	<u>10YR 4/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
6-17	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
<p><sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>	
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>No</u> (includes capillary fringe)	Depth (inches): Depth (inches): Depth (inches):
<b>Wetland Hydrology Present? <u>Yes</u></b>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	



**SOIL**

Sampling Point: 21

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	<u>10YR 4/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
6-18	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
<p><sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>	
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>Yes</u> (includes capillary fringe)	Depth (inches): Depth (inches): Depth (inches): <u>15</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 21a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16797530 Long: -123.16198790 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: <u>  </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>80</u> x 3 = <u>240</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>280</u> (B)  Prevalence Index = B/A = <u>2.80</u>
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa palustris</u> 2. <u>Juncus balticus</u> 3. <u>Phalaris arundinacea</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>80</u> <u>10</u> <u>10</u>	<u>Yes</u> <u>No</u> <u>No</u>	<u>FAC</u> <u>FACW</u> <u>FACW</u>	Hydrophytic Vegetation Indicators: ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present? <u>Yes</u></b>
Remarks: grazed pasture				



**SOIL**

Sampling Point: 21a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-11</u>	<u>10YR 4/3</u>	<u>100</u>		<u>0</u>				
<u>19-26</u>	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	
<u>11-19</u>	<u>10YR 4/2</u>	<u>100</u>		<u>0</u>				

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>No</u></b>
Remarks:	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>No</u> Depth (inches): (includes capillary fringe)	<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 22  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16810600 Long: -123.16187800 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>90</u> x 2 = <u>180</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>210</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Poa palustris</u> 3. <u>Rumex crispus</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>90</u> <u>5</u> <u>5</u>	<u>Yes</u> <u>No</u> <u>No</u>	<u>FACW</u> <u>FAC</u> <u>FAC</u>	Prevalence Index = B/A = <u>2.10</u>
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>
Remarks: grazed pasture				

**SOIL**

Sampling Point: 22

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	<u>10YR 4/3</u>	<u>100</u>		<u>0</u>				
8-18	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): <u>0</u> Depth (inches): <u>0</u> Depth (inches): <u>13</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 22a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16810500 Long: -123.16189600 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>70</u> x 3 = <u>210</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>290</u> (B)  Prevalence Index = B/A = <u>2.90</u>
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Poa palustris</u> 3. <u>Rumex crispus</u> 4. <u>Matricaria discoidea</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>20</u> <u>60</u> <u>10</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>No</u> <u>No</u>	<u>FACW</u> <u>FAC</u> <u>FAC</u> <u>FACU</u>	Prevalence Index = B/A = <u>2.90</u>  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks: grazed pasture				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>



**SOIL**

Sampling Point: 22a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-11</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Sandy Clay Loam</u>	
<u>11-19</u>	<u>10YR 4/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
<u>19-24</u>	<u>10YR 4/2</u>	<u>98</u>	<u>10YR 4/4</u>	<u>2</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>No</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): <u>0</u> Depth (inches): <u>0</u> Depth (inches): <u>20</u>
		<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 24  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16993600 Long: -123.16139800 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: __ )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4.  Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>120</u> x 3 = <u>360</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>150</u> (A) <u>420</u> (B)  Prevalence Index = B/A = <u>2.80</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. 3. 4. 5.  Total Cover = <u>60</u>	<u>60</u>	<u>Yes</u>	<u>FAC</u>	
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Poa palustris</u> 3. <u>Ranunculus repens</u> 4. 5. 6. 7. 8. 9. 10. 11.  Total Cover = <u>90</u>	<u>30</u> <u>30</u> <u>30</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>FAC</u> <u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2.  Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>10</u>				
Remarks:				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> <u>Yes</u>

**SOIL**

Sampling Point: 24

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	<u>10YR 3/2</u>	<u>0</u>		<u>0</u>			<u>Silty Clay Loam</u>	
7-18	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)  <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): <u>0</u> Water Table Present? <u>No</u> Depth (inches): <u>0</u> Saturation Present? <u>No</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 24a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16992700 Long: -123.16138400 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: __ )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. 3. 4. 5. Total Cover = <u>50</u>	<u>50</u>	<u>Yes</u>	<u>FAC</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>50</u> x 2 = <u>100</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>150</u> (A) <u>400</u> (B)  Prevalence Index = B/A = <u>2.67</u>
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Poa palustris</u> 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>50</u> <u>50</u>	<u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 24a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-10</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Sandy Clay Loam</u>	
<u>10-16</u>	<u>10YR 3/3</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	
<u>16-25</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>No</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): <u>0</u> Water Table Present? <u>No</u> Depth (inches): <u>0</u> Saturation Present? <u>No</u> Depth (inches): <u>0</u> (includes capillary fringe)		<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		



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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 25  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17037930 Long: -123.17839180 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification:  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes																					
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)																					
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> <table style="width:100%; border: none;"> <tr> <td style="border: none;"><u>Total % Cover of:</u></td> <td style="border: none;"><u>Multiply by:</u></td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">OBL species <u>0</u></td> <td style="border: none;">x 1 =</td> <td style="border: none;"><u>0</u></td> </tr> <tr> <td style="border: none;">FACW species <u>100</u></td> <td style="border: none;">x 2 =</td> <td style="border: none;"><u>200</u></td> </tr> <tr> <td style="border: none;">FAC species <u>0</u></td> <td style="border: none;">x 3 =</td> <td style="border: none;"><u>0</u></td> </tr> <tr> <td style="border: none;">FACU species <u>0</u></td> <td style="border: none;">x 4 =</td> <td style="border: none;"><u>0</u></td> </tr> <tr> <td style="border: none;">UPL species <u>0</u></td> <td style="border: none;">x 5 =</td> <td style="border: none;"><u>0</u></td> </tr> <tr> <td style="border: none;">Column Totals: <u>100</u> (A)</td> <td style="border: none;"></td> <td style="border: none;"><u>200</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.00</u>	<u>Total % Cover of:</u>	<u>Multiply by:</u>		OBL species <u>0</u>	x 1 =	<u>0</u>	FACW species <u>100</u>	x 2 =	<u>200</u>	FAC species <u>0</u>	x 3 =	<u>0</u>	FACU species <u>0</u>	x 4 =	<u>0</u>	UPL species <u>0</u>	x 5 =	<u>0</u>	Column Totals: <u>100</u> (A)		<u>200</u> (B)
<u>Total % Cover of:</u>	<u>Multiply by:</u>																								
OBL species <u>0</u>	x 1 =	<u>0</u>																							
FACW species <u>100</u>	x 2 =	<u>200</u>																							
FAC species <u>0</u>	x 3 =	<u>0</u>																							
FACU species <u>0</u>	x 4 =	<u>0</u>																							
UPL species <u>0</u>	x 5 =	<u>0</u>																							
Column Totals: <u>100</u> (A)		<u>200</u> (B)																							
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																					
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																					
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>																					

**SOIL**

Sampling Point: 25

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-9</u>	<u>10YR 2/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>8</u> Depth (inches): <u>3</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 25a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 37  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17037010 Long: -123.17841930 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes																					
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)																					
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> <table style="width:100%; border: none;"> <tr> <td style="text-align: right;"><u>Total % Cover of:</u></td> <td style="text-align: right;"><u>Multiply by:</u></td> <td></td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 =</td> <td><u>0</u></td> </tr> <tr> <td>FACW species <u>20</u></td> <td>x 2 =</td> <td><u>40</u></td> </tr> <tr> <td>FAC species <u>80</u></td> <td>x 3 =</td> <td><u>240</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 =</td> <td><u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 =</td> <td><u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td></td> <td><u>280</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.80</u>	<u>Total % Cover of:</u>	<u>Multiply by:</u>		OBL species <u>0</u>	x 1 =	<u>0</u>	FACW species <u>20</u>	x 2 =	<u>40</u>	FAC species <u>80</u>	x 3 =	<u>240</u>	FACU species <u>0</u>	x 4 =	<u>0</u>	UPL species <u>0</u>	x 5 =	<u>0</u>	Column Totals: <u>100</u> (A)		<u>280</u> (B)
<u>Total % Cover of:</u>	<u>Multiply by:</u>																								
OBL species <u>0</u>	x 1 =	<u>0</u>																							
FACW species <u>20</u>	x 2 =	<u>40</u>																							
FAC species <u>80</u>	x 3 =	<u>240</u>																							
FACU species <u>0</u>	x 4 =	<u>0</u>																							
UPL species <u>0</u>	x 5 =	<u>0</u>																							
Column Totals: <u>100</u> (A)		<u>280</u> (B)																							
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Lolium perenne</u> 3. <u>Dipsacus fullonum</u> 4. <u>Poa palustris</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>20</u> <u>30</u> <u>20</u> <u>30</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>FAC</u> <u>FAC</u> <u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																					
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																					
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>																					

**SOIL**

Sampling Point: 25a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-11</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Sandy Clay Loam</u>	<u>some gravel</u>
<u>11-15</u>	<u>10YR 2/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
<u>15-26</u>	<u>10YR 2/2</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>No</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>Yes</u> Depth (inches): <u>20</u> (includes capillary fringe)		<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 26  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 37  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17386760 Long: -123.18356620 Datum: WGS84  
 Soil Map Unit Name: lacoda silt loam, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes														
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)														
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>																		
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Lolium perenne</u> 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>70</u> <u>30</u>	<u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>FAC</u>															
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: right;"><u>Total % Cover of:</u></td> <td style="text-align: left;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>70</u></td> <td>x 2 = <u>140</u></td> </tr> <tr> <td>FAC species <u>30</u></td> <td>x 3 = <u>90</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>230</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.30</u>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>70</u>	x 2 = <u>140</u>	FAC species <u>30</u>	x 3 = <u>90</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>100</u> (A)	<u>230</u> (B)
<u>Total % Cover of:</u>	<u>Multiply by:</u>																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>70</u>	x 2 = <u>140</u>																	
FAC species <u>30</u>	x 3 = <u>90</u>																	
FACU species <u>0</u>	x 4 = <u>0</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
Column Totals: <u>100</u> (A)	<u>230</u> (B)																	
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>														



**SOIL**

Sampling Point: 26

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-15</u>	<u>10YR 3/1</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>5</u> Depth (inches): <u>0</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 26a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 37  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17386130 Long: -123.18357800 Datum: WGS84  
 Soil Map Unit Name: Lacoda silt loam, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>90</u> x 3 = <u>270</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>290</u> (B)  Prevalence Index = B/A = <u>2.90</u>
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Lolium perenne</u> 3. <u>Poa pratensis</u> 4. <u>Dipsacus fullonum</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>10</u> <u>50</u> <u>30</u> <u>10</u>	<u>No</u> <u>Yes</u> <u>Yes</u> <u>No</u>	<u>FACW</u> <u>FAC</u> <u>FAC</u> <u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 26a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-15	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Sandy Clay Loam</u>	<u>some gravel</u>
15-26	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/6</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	
Remarks:	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Hydric Soil Present?** No

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>Yes</u> (includes capillary fringe)	Depth (inches): Depth (inches): Depth (inches): <u>20</u>
<b>Wetland Hydrology Present?</b> <u>No</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 27  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 37  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17741500 Long: -123.18617600 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1/SSC  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> ) 1. <u>Alnus rubra</u> 2. 3. 4. Total Cover = <u>40</u>	<u>40</u>	<u>Yes</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>160</u> x 3 = <u>480</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>160</u> (A) <u>480</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Lolium perenne</u> 2. <u>Poa palustris</u> 3. <u>Ranunculus repens</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>40</u> <u>40</u> <u>20</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FAC</u> <u>FAC</u> <u>FAC</u>	Prevalence Index = B/A = <u>3.00</u>  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. Total Cover = <u>20</u>  % Bare Ground in Herb Stratum: <u>0</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 27

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Sandy Clay Loam</u>	
4-17	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>No</u> (includes capillary fringe)		Depth (inches): <u>0</u> Depth (inches): <u>0</u> Depth (inches): <u>0</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		



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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 27a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 37  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17740700 Long: -123.18615700 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1/SSC  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Hydric Soil Present? <u>No</u>	
Wetland Hydrology Present? <u>No</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: (A)	Total Number of Dominant Species Across All Strata: (B)	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
<u>Tree Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> ) 1. <u>Alnus rubra</u> 2. 3. 4. Total Cover = <u>10</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	<u>4</u> (A)	<u>4</u> (B)	<u>100</u> (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>115</u> x 3 = <u>345</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>115</u> (A) <u>345</u> (B) Prevalence Index = B/A = <u>3.00</u>		
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Lolium perenne</u> 2. <u>Poa palustris</u> 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>50</u> <u>50</u>	<u>Yes</u> <u>Yes</u>	<u>FAC</u> <u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
<u>Woody Vine Stratum</u> (Plot size: <u>4</u> ) 1. <u>Rubus armeniacus</u> 2. Total Cover = <u>5</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
% Bare Ground in Herb Stratum: <u>0</u>				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>		
Remarks:						

**SOIL**

Sampling Point: 27a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
7-17	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
17-26	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>No</u></b>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): <u>0</u> Water Table Present? <u>No</u> Depth (inches): <u>0</u> Saturation Present? <u>No</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 28  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16419740 Long: -123.18059780 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks: irrigated mint field	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>60</u> x 3 = <u>180</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>80</u> (A) <u>220</u> (B) Prevalence Index = B/A = <u>2.75</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> <u>10</u> <u>No</u> <u>FACW</u> 2. <u>Mentha x piperita</u> <u>10</u> <u>No</u> <u>FACW</u> 3. <u>Ranunculus repens</u> <u>10</u> <u>No</u> <u>FAC</u> 4. <u>Schedonorus arundinacea</u> <u>50</u> <u>Yes</u> <u>FAC</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>80</u>				Hydrophytic Vegetation Indicators: ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> <u>Yes</u>
Remarks:				

**SOIL**

Sampling Point: 28

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	<u>10YR 3/3</u>	<u>98</u>	<u>10YR 4/4</u>	<u>2</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	
4-15	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	
15-25	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>No</u> (includes capillary fringe)		Depth (inches): Depth (inches): Depth (inches): <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 04/12/2019  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 29  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16430860 Long: -123.16805290 Datum: WGS84  
 Soil Map Unit Name: Wauna silt loam, protected NWI classification: PEM1C  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks: mint field	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: <u>  </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>  </u> (A)  Total Number of Dominant Species Across All Strata: <u>  </u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>  </u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4.  Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>50</u> x 2 = <u>100</u> FAC species <u>70</u> x 3 = <u>210</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>120</u> (A) <u>310</u> (B)  Prevalence Index = B/A = <u>2.58</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5.  Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Cirsium arvense</u> 2. <u>Phalaris arundinacea</u> 3. <u>Cardamine occidentalis</u> 4. 5. 6. 7. 8. 9. 10. 11.  Total Cover = <u>100</u>	<u>50</u> <u>40</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FAC</u> <u>FACW</u> <u>FACW</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>4</u> ) 1. <u>Rubus armeniacus</u> 2.  Total Cover = <u>20</u>  % Bare Ground in Herb Stratum: <u>0</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks:				<b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<b>Hydrophytic Vegetation Present?</b> <u>Yes</u>



**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>				
8-18	<u>10YR 3/1</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>				

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>14</u> Depth (inches): <u>9</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 04/12/2019  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 30  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16427940 Long: -123.17127860 Datum: WGS84  
 Soil Map Unit Name: Wauna silt loam, protected NWI classification: PEM1C  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks: hay field/pasture	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Schedonorus arundinacea</u> 2. <u>Ranunculus repens</u> 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>90</u> <u>10</u>	<u>Yes</u> <u>No</u>	<u>FAC</u> <u>FAC</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks:				<b>Hydrophytic Vegetation Present?</b> <u>Yes</u>

**SOIL**

Sampling Point: 30

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-16</u>	<u>10YR 3/2</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)		
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>						<b>Hydric Soil Present? <u>Yes</u></b>		
Remarks:								

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <b>(except MLRA 1,2,4A, and 4B)</b> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>Yes</u> Depth (inches): <u>18</u> (includes capillary fringe)		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 31  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16975770 Long: -123.16056050 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: __ )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4.  Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>80</u> x 2 = <u>160</u> FAC species <u>40</u> x 3 = <u>120</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>120</u> (A) <u>280</u> (B)  Prevalence Index = B/A = <u>2.33</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. 3. 4. 5.  Total Cover = <u>20</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Cirsium arvense</u> 3. 4. 5. 6. 7. 8. 9. 10. 11.  Total Cover = <u>100</u>	<u>80</u> <u>20</u>	<u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>4</u> ) 1. <u>Rubus armeniacus</u> 2.  Total Cover = <u>10</u>  % Bare Ground in Herb Stratum: <u>0</u>	<u>10</u>	<u>Yes</u>	<u>Fac</u>	
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 31

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-14</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): Depth (inches): <u>14</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		



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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 32  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16901250 Long: -123.15901710 Datum: WGS84  
 Soil Map Unit Name: Crims silt loam, protected NWI classification: PEM1C  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes																					
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																					
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>																									
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FACW</u>																						
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<b>Prevalence Index worksheet:</b> <table style="width:100%; border: none;"> <tr> <td style="text-align: right;"><u>Total % Cover of:</u></td> <td style="text-align: right;"><u>Multiply by:</u></td> <td></td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 =</td> <td><u>0</u></td> </tr> <tr> <td>FACW species <u>100</u></td> <td>x 2 =</td> <td><u>200</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 =</td> <td><u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 =</td> <td><u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 =</td> <td><u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td></td> <td><u>200</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.00</u>	<u>Total % Cover of:</u>	<u>Multiply by:</u>		OBL species <u>0</u>	x 1 =	<u>0</u>	FACW species <u>100</u>	x 2 =	<u>200</u>	FAC species <u>0</u>	x 3 =	<u>0</u>	FACU species <u>0</u>	x 4 =	<u>0</u>	UPL species <u>0</u>	x 5 =	<u>0</u>	Column Totals: <u>100</u> (A)		<u>200</u> (B)
<u>Total % Cover of:</u>	<u>Multiply by:</u>																								
OBL species <u>0</u>	x 1 =	<u>0</u>																							
FACW species <u>100</u>	x 2 =	<u>200</u>																							
FAC species <u>0</u>	x 3 =	<u>0</u>																							
FACU species <u>0</u>	x 4 =	<u>0</u>																							
UPL species <u>0</u>	x 5 =	<u>0</u>																							
Column Totals: <u>100</u> (A)		<u>200</u> (B)																							
<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																									
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																									
<b>Hydrophytic Vegetation Present? <u>Yes</u></b>																									
Remarks:																									

**SOIL**

Sampling Point: 32

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-16</u>	<u>10YR 4/2</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>15</u> Depth (inches): <u>10</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 33  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16431830 Long: -123.15154960 Datum: WGS84  
 Soil Map Unit Name: Crims silt loam, protected NWI classification: PEM1A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>40</u> x 2 = <u>80</u> FAC species <u>55</u> x 3 = <u>165</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>265</u> (B) Prevalence Index = B/A = <u>2.65</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Juncus balticus</u> <u>20</u> <u>Yes</u> <u>FACW</u> 2. <u>Phalaris arundinacea</u> <u>20</u> <u>Yes</u> <u>FACW</u> 3. <u>Schedonorus arundinacea</u> <u>50</u> <u>Yes</u> <u>FAC</u> 4. <u>Daucas carota</u> <u>5</u> <u>No</u> <u>FACU</u> 5. <u>Cirsium arvense</u> <u>5</u> <u>No</u> <u>FAC</u> 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>				Hydrophytic Vegetation Indicators: ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> <u>Yes</u>
Remarks: grazed pasture				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	<u>10YR 4/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
3-17	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>16</u> Depth (inches): <u>11</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 34  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16368120 Long: -123.14971620 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes																					
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)																					
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> <table style="width:100%; border: none;"> <tr> <td style="border: none;"><u>Total % Cover of:</u></td> <td style="border: none;"><u>Multiply by:</u></td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">OBL species <u>0</u></td> <td style="border: none;">x 1 =</td> <td style="border: none;"><u>0</u></td> </tr> <tr> <td style="border: none;">FACW species <u>100</u></td> <td style="border: none;">x 2 =</td> <td style="border: none;"><u>200</u></td> </tr> <tr> <td style="border: none;">FAC species <u>0</u></td> <td style="border: none;">x 3 =</td> <td style="border: none;"><u>0</u></td> </tr> <tr> <td style="border: none;">FACU species <u>0</u></td> <td style="border: none;">x 4 =</td> <td style="border: none;"><u>0</u></td> </tr> <tr> <td style="border: none;">UPL species <u>0</u></td> <td style="border: none;">x 5 =</td> <td style="border: none;"><u>0</u></td> </tr> <tr> <td style="border: none;">Column Totals: <u>100</u> (A)</td> <td style="border: none;"></td> <td style="border: none;"><u>200</u> (B)</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>		OBL species <u>0</u>	x 1 =	<u>0</u>	FACW species <u>100</u>	x 2 =	<u>200</u>	FAC species <u>0</u>	x 3 =	<u>0</u>	FACU species <u>0</u>	x 4 =	<u>0</u>	UPL species <u>0</u>	x 5 =	<u>0</u>	Column Totals: <u>100</u> (A)		<u>200</u> (B)
<u>Total % Cover of:</u>	<u>Multiply by:</u>																								
OBL species <u>0</u>	x 1 =	<u>0</u>																							
FACW species <u>100</u>	x 2 =	<u>200</u>																							
FAC species <u>0</u>	x 3 =	<u>0</u>																							
FACU species <u>0</u>	x 4 =	<u>0</u>																							
UPL species <u>0</u>	x 5 =	<u>0</u>																							
Column Totals: <u>100</u> (A)		<u>200</u> (B)																							
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FACW</u>	Prevalence Index = B/A = <u>2.00</u>  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																					
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																					
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>																					



**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
5-15	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>15</u> Depth (inches): <u>10</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 34a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16369360 Long: -123.14971460 Datum: WGS84  
 Soil Map Unit Name: Udipsammets, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>No</u>
Hydric Soil Present? <u>No</u>	
Wetland Hydrology Present? <u>No</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: __ )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4.  Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>70</u> x 2 = <u>140</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>120</u> (A) <u>310</u> (B)  Prevalence Index = B/A = <u>2.58</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5.  Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Daucus carota</u> 3. <u>Lolium perenne</u> 4. 5. 6. 7. 8. 9. 10. 11.  Total Cover = <u>100</u>	<u>70</u> <u>20</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>No</u>	<u>FACW</u> <u>FACU</u> <u>FAC</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>4</u> ) 1. <u>Rubus armeniacus</u> 2.  Total Cover = <u>20</u>  % Bare Ground in Herb Stratum: <u>0</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks:				<b>Hydrophytic Vegetation Present?</b> <u>Yes</u>

**SOIL**

Sampling Point: 34a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-11</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Sandy Clay Loam</u>	
<u>11-19</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
<u>19-26</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>No</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)	
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>Yes</u> (includes capillary fringe)	Depth (inches): Depth (inches): Depth (inches): <u>21</u>	<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 35  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16876990 Long: -123.17849630 Datum: WGS84  
 Soil Map Unit Name: lacoda silt loam, protected NWI classification: PEM1C  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>130</u> (A) <u>290</u> (B) Prevalence Index = B/A = <u>2.23</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Mentha x piperita</u> 2. <u>Phalaris arundinacea</u> 3. <u>Juncus balticus</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>30</u> <u>60</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>No</u>	<u>FACW</u> <u>FACW</u> <u>FACW</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>4</u> ) 1. <u>Rubus armeniacus</u> 2. Total Cover = <u>30</u>  % Bare Ground in Herb Stratum: <u>0</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: irrigated mint field				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 35

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
7-17	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): Depth (inches): <u>15</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		



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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 04/12/2019  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 36  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16946800 Long: -123.17943300 Datum: WGS84  
 Soil Map Unit Name: Lacoda silt loam, protected NWI classification: PEM1C  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: <u>  </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>  </u> (A)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Total Number of Dominant Species Across All Strata: <u>  </u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. 3. 4. 5. Total Cover = <u>50</u>	<u>50</u>	<u>Yes</u>	<u>FAC</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FACW</u>	<b>Prevalence Index worksheet:</b> <u>  </u> Total % Cover of: <u>  </u> Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>50</u> x 3 = <u>150</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>150</u> (A) <u>350</u> (B)  Prevalence Index = B/A = <u>2.33</u>
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>				1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
% Bare Ground in Herb Stratum: <u>0</u>				
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Sandy Clay Loam</u>	
5-13	<u>10YR 3/2</u>	<u>93</u>	<u>10YR 4/6</u>	<u>7</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	
13-24	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>No</u> (includes capillary fringe)		Depth (inches): Depth (inches): Depth (inches): <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 04/12/2019  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 36a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16947900 Long: -123.17943800 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1C  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes																					
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)																					
<u>Sapling/Shrub Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. 3. 4. 5. Total Cover = <u>50</u>	<u>50</u>	<u>Yes</u>	<u>FAC</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> <table style="width:100%; border: none;"> <tr> <td style="text-align: right;"><u>Total % Cover of:</u></td> <td style="text-align: right;"><u>Multiply by:</u></td> <td></td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 =</td> <td><u>0</u></td> </tr> <tr> <td>FACW species <u>100</u></td> <td>x 2 =</td> <td><u>200</u></td> </tr> <tr> <td>FAC species <u>50</u></td> <td>x 3 =</td> <td><u>150</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 =</td> <td><u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 =</td> <td><u>0</u></td> </tr> <tr> <td>Column Totals: <u>150</u> (A)</td> <td></td> <td><u>350</u> (B)</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>		OBL species <u>0</u>	x 1 =	<u>0</u>	FACW species <u>100</u>	x 2 =	<u>200</u>	FAC species <u>50</u>	x 3 =	<u>150</u>	FACU species <u>0</u>	x 4 =	<u>0</u>	UPL species <u>0</u>	x 5 =	<u>0</u>	Column Totals: <u>150</u> (A)		<u>350</u> (B)
<u>Total % Cover of:</u>	<u>Multiply by:</u>																								
OBL species <u>0</u>	x 1 =	<u>0</u>																							
FACW species <u>100</u>	x 2 =	<u>200</u>																							
FAC species <u>50</u>	x 3 =	<u>150</u>																							
FACU species <u>0</u>	x 4 =	<u>0</u>																							
UPL species <u>0</u>	x 5 =	<u>0</u>																							
Column Totals: <u>150</u> (A)		<u>350</u> (B)																							
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FACW</u>	Prevalence Index = B/A = <u>2.33</u>  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																					
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																					
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>																					

**SOIL**

Sampling Point: 36a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Sandy Clay Loam</u>	
9-20	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
20-25	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
<p><sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>	
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>No</u></b>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>No</u> (includes capillary fringe)	Depth (inches): Depth (inches): Depth (inches): <b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 37  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16689600 Long: -123.17601800 Datum: WGS84  
 Soil Map Unit Name: Wauna-Lacoda silt loams, protected NWI classification: PEM1C  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: <u>  </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>  </u> (A) Total Number of Dominant Species Across All Strata: <u>  </u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>  </u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>120</u> (A) <u>260</u> (B) Prevalence Index = B/A = <u>2.17</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Mentha x piperita</u> 2. <u>Phalaris arundinacea</u> 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>20</u> <u>80</u>	<u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>FACW</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. Total Cover = <u>20</u>  % Bare Ground in Herb Stratum: <u>0</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: irrigated mint field				<b>Hydrophytic Vegetation Present?</b> <u>Yes</u>



**SOIL**

Sampling Point: 37

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
5-18	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): <u>0</u> Depth (inches): <u>16</u> Depth (inches): <u>11</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 38  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16560930 Long: -123.17429860 Datum: WGS84  
 Soil Map Unit Name: Wauna-Lacoda silt loams, protected NWI classification: PEM1C  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes																					
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)																					
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> <table style="width:100%; border: none;"> <tr> <td style="text-align: right;"><u>Total % Cover of:</u></td> <td style="text-align: right;"><u>Multiply by:</u></td> <td></td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 =</td> <td><u>0</u></td> </tr> <tr> <td>FACW species <u>100</u></td> <td>x 2 =</td> <td><u>200</u></td> </tr> <tr> <td>FAC species <u>20</u></td> <td>x 3 =</td> <td><u>60</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 =</td> <td><u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 =</td> <td><u>0</u></td> </tr> <tr> <td>Column Totals: <u>120</u> (A)</td> <td></td> <td><u>260</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.17</u>	<u>Total % Cover of:</u>	<u>Multiply by:</u>		OBL species <u>0</u>	x 1 =	<u>0</u>	FACW species <u>100</u>	x 2 =	<u>200</u>	FAC species <u>20</u>	x 3 =	<u>60</u>	FACU species <u>0</u>	x 4 =	<u>0</u>	UPL species <u>0</u>	x 5 =	<u>0</u>	Column Totals: <u>120</u> (A)		<u>260</u> (B)
<u>Total % Cover of:</u>	<u>Multiply by:</u>																								
OBL species <u>0</u>	x 1 =	<u>0</u>																							
FACW species <u>100</u>	x 2 =	<u>200</u>																							
FAC species <u>20</u>	x 3 =	<u>60</u>																							
FACU species <u>0</u>	x 4 =	<u>0</u>																							
UPL species <u>0</u>	x 5 =	<u>0</u>																							
Column Totals: <u>120</u> (A)		<u>260</u> (B)																							
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																					
<u>Woody Vine Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. Total Cover = <u>20</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																					
% Bare Ground in Herb Stratum: <u>0</u>				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>																					
Remarks: irrigated mint field																									

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
7-14	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	
14-24	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>No</u> (includes capillary fringe)		Depth (inches): Depth (inches): Depth (inches):
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 39  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16422400 Long: -123.18284800 Datum: WGS84  
 Soil Map Unit Name: Wauna-Lacoda silt loams, protected NWI classification: PEM1A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: <u>  </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>  3  </u> (A)  Total Number of Dominant Species Across All Strata: <u>  3  </u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u> 100 </u> (A/B)
<u>Tree Stratum</u> (Plot size: <u> 0 </u> ) 1. 2. 3. 4.  Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u> 0 </u> x 1 = <u> 0 </u> FACW species <u> 60 </u> x 2 = <u> 120 </u> FAC species <u> 50 </u> x 3 = <u> 150 </u> FACU species <u> 0 </u> x 4 = <u> 0 </u> UPL species <u> 0 </u> x 5 = <u> 0 </u> Column Totals: <u> 110 </u> (A) <u> 270 </u> (B)  Prevalence Index = B/A = <u>2.45</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u> 0 </u> ) 1. 2. 3. 4. 5.  Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u> 4 m<sup>2</sup> </u> ) 1. <u>Mentha x piperita</u> 2. <u>Phalaris arundinacea</u> 3. <u>Cirsium arvense</u> 4. 5. 6. 7. 8. 9. 10. 11.  Total Cover = <u>90</u>	<u>10</u> <u>50</u> <u>30</u>	<u>No</u> <u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>FACW</u> <u>FAC</u>	
<u>Woody Vine Stratum</u> (Plot size: <u> 4 m<sup>2</sup> </u> ) 1. <u>Rubus armeniacus</u> 2.  Total Cover = <u>20</u>  % Bare Ground in Herb Stratum: <u>0</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 –Rapid Test for Hydrophytic Vegetation <u> X </u> 2 – Dominance Test >50% <u> X </u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: irrigated mint field				<b>Hydrophytic Vegetation Present?</b> <u>Yes</u>

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
6-18	<u>10YR 3/1</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
<p><b>Restrictive Layer (if present):</b>                      Type:                      Depth (inches): <u>0</u></p>	
<p>Remarks:</p>	
<p><b>Hydric Soil Present? <u>Yes</u></b></p>	
<p><sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<p><b>Field Observations:</b>                      Surface Water Present? <u>No</u>                      Water Table Present? <u>Yes</u>                      Saturation Present? <u>Yes</u>                      (includes capillary fringe)</p>	<p>Depth (inches): <u>0</u>                      Depth (inches): <u>15</u>                      Depth (inches): <u>10</u></p>
<p><b>Wetland Hydrology Present? <u>Yes</u></b></p>	
<p>Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:</p>	
<p>Remarks:</p>	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 39a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16422700 Long: -123.18286200 Datum: WGS84  
 Soil Map Unit Name: Wauna-Lacoda silt loams, protected NWI classification: PEM1A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: <u>  </u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>  </u> (A)  Total Number of Dominant Species Across All Strata: <u>  </u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>  </u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>50</u> x 2 = <u>100</u> FAC species <u>70</u> x 3 = <u>210</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>120</u> (A) <u>310</u> (B)  Prevalence Index = B/A = <u>2.58</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Cirsium arvense</u> 3. <u>Lolium perenne</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>90</u>	<u>50</u> <u>20</u> <u>20</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>FAC</u> <u>FAC</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. Total Cover = <u>30</u>  % Bare Ground in Herb Stratum: <u>0</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks: irrigated mint field				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: irrigated mint field				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>



**SOIL**

Sampling Point: 39a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-10</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Sandy Clay Loam</u>	
<u>10-19</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
<u>19-25</u>	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/6</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>No</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): <u>0</u> Depth (inches): <u>0</u> Depth (inches): <u>20</u>
		<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 40  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17015100 Long: -123.17823200 Datum: WGS84  
 Soil Map Unit Name: Lacoda silt loam, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>110</u> (A) <u>230</u> (B)  Prevalence Index = B/A = <u>2.09</u>
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. Total Cover = <u>10</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
% Bare Ground in Herb Stratum: <u>0</u>				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>
Remarks:				

**SOIL**

Sampling Point: 40

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-9</u>	<u>10YR 2/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input checked="" type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>5</u> Depth (inches): <u>0</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 40a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17015500 Long: -123.17821800 Datum: WGS84  
 Soil Map Unit Name: Lacoda silt loam, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: __ )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>60</u> x 2 = <u>120</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>30</u> x 4 = <u>120</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>120</u> (A) <u>330</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Sisymbrium altissimum</u> 3. <u>Lolium perenne</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>60</u> <u>30</u> <u>10</u>	<u>Yes</u> <u>No</u> <u>No</u>	<u>FACW</u> <u>FACU</u> <u>FAC</u>	Prevalence Index = B/A = <u>2.75</u>
<u>Woody Vine Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. Total Cover = <u>20</u>  % Bare Ground in Herb Stratum: <u>0</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks:				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 40a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
8-16	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
16-25	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>No</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)	
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)	Depth (inches): Depth (inches): <u>21</u> Depth (inches): <u>15</u>	<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: NEXT Energy Renewable Biodiesel

City/County: Columbia

Sampling Date: 09/30/2020

Applicant/Owner: NEXT Energy State: OR

Sampling Point: 41

Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16

Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17096080 Long: -123.17911080 Datum: WGS84

Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)

Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes

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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4.  Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>70</u> x 1 = <u>70</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>120</u> (A) <u>190</u> (B)  Prevalence Index = B/A = <u>1.58</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5.  Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Scirpus microcarpus</u> 2. <u>Phalaris arundinacea</u> 3. <u>Juncus balticus</u> 4. 5. 6. 7. 8. 9. 10. 11.  Total Cover = <u>100</u>	<u>70</u> <u>20</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>OBL</u> <u>FACW</u> <u>FACW</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2.  Total Cover = <u>20</u>  % Bare Ground in Herb Stratum: <u>0</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks:				<b>Hydrophytic Vegetation Present?</b> <u>Yes</u>



**SOIL**

Sampling Point: 41

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	
9-12	<u>10YR 4/2</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	
12-18	<u>10YR 2/2</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>16</u> Depth (inches): <u>10</u> <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: NEXT Energy Renewable Biodiesel

City/County: Columbia

Sampling Date: 09/30/2020

Applicant/Owner: NEXT Energy State: OR

Sampling Point: 41a

Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16

Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17095730 Long: -123.17909670 Datum: WGS84

Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)

Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes

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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>No</u></b>
Hydric Soil Present? <u>No</u>	
Wetland Hydrology Present? <u>No</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: __ )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4.  Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>30</u> x 1 = <u>30</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>40</u> x 3 = <u>120</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>120</u> (A) <u>290</u> (B)  Prevalence Index = B/A = <u>2.42</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5.  Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Equisetum arvense</u> 2. <u>Scirpus microcarpus</u> 3. <u>Phalaris arundinacea</u> 4. <u>Polystichum munitum</u> 5. 6. 7. 8. 9. 10. 11.  Total Cover = <u>100</u>	<u>20</u> <u>30</u> <u>30</u> <u>20</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FAC</u> <u>OBL</u> <u>FACW</u> <u>FACU</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2.  Total Cover = <u>20</u>  % Bare Ground in Herb Stratum: <u>0</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks:				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 41a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-15	<u>10YR 4/3</u>	<u>98</u>	<u>10YR 4/4</u>	<u>2</u>	<u>C</u>	<u>M</u>	<u>Sandy Clay Loam</u>	
15-24	<u>10YR 4/3</u>	<u>98</u>	<u>10YR 4/4</u>	<u>2</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>No</u></b>
Remarks:	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> (except MLRA 1,2,4A, and 4B) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)(LRR A) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)(LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>Yes</u> Depth (inches): <u>18</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	



**SOIL**

Sampling Point: 42

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	<u>10YR 4/3</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	
9-18	<u>10YR 5/1</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>15</u> Depth (inches): <u>10</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: NEXT Energy Renewable Biodiesel

City/County: Columbia

Sampling Date: 09/30/2020

Applicant/Owner: NEXT Energy State: OR

Sampling Point: 42a

Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16

Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17282600 Long: -123.18191500 Datum: WGS84

Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)

Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed?

Are "Normal Circumstances" present? Yes

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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>No</u>
Hydric Soil Present? <u>No</u>	
Wetland Hydrology Present? <u>No</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: __ )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4.  Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>90</u> x 2 = <u>180</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>120</u> (A) <u>270</u> (B)  Prevalence Index = B/A = <u>2.25</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5.  Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Equisetum arvense</u> 3. <u>Juncus balticus</u> 4. 5. 6. 7. 8. 9. 10. 11.  Total Cover = <u>100</u>	<u>70</u> <u>10</u> <u>20</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>FAC</u> <u>FACW</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2.  Total Cover = <u>20</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
% Bare Ground in Herb Stratum: <u>0</u>				
Remarks:				<b>Hydrophytic Vegetation Present?</b> <u>Yes</u>



**SOIL**

Sampling Point: 42a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-24</u>	<u>10YR 4/3</u>	<u>95</u>	<u>10YR 5/8</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>No</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>No</u> Depth (inches): (includes capillary fringe)		<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 04/08/2021  
 Applicant/Owner: NEXT Energy Group, Inc. State: OR Sampling Point: 43  
 Investigator(s): Sue Brady Section, Township, Range: T8N R04W Section 23  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16395560 Long: -123.15168410 Datum: WGS84  
 Soil Map Unit Name: Crims silt loam, protected NWI classification: PEM1A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil  , or Hydrology   significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks: grazed pasture	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>70</u> x 3 = <u>210</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>270</u> (B) Prevalence Index = B/A = <u>2.70</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Juncus balticus</u> 2. <u>Ranunculus repens</u> 3. <u>Lolium perenne</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>30</u> <u>50</u> <u>20</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>FAC</u> <u>FAC</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Indicators:</b> <u> </u> 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u> </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u> </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: grazed pasture				<b>Hydrophytic Vegetation Present? <u>Yes</u></b>

**SOIL**

Sampling Point: 43

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-14</u>	<u>10YR 3/2</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>10</u> Depth (inches): <u>5</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 04/08/2021  
 Applicant/Owner: NEXT Energy Group, Inc. State: OR Sampling Point: 44  
 Investigator(s): Sue Brady Section, Township, Range: T8N R04W Section 23  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16407840 Long: -123.15250690 Datum: WGS84  
 Soil Map Unit Name: Crims silt loam, protected NWI classification: PEM1A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation X, Soil   , or Hydrology    significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks: grazed pasture	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				<b>Prevalence Index worksheet:</b> <u>Total % Cover of:</u> <u>Multiply by:</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa pratensis</u> 2. <u>Ranunculus repens</u> 3. <u>Trifolium repens</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>70</u> <u>20</u> <u>10</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FAC</u> <u>FAC</u> <u>FAC</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> 5 – Wetland Non-Vascular Plants <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: grazed pasture				<b>Hydrophytic Vegetation Present?</b> <u>Yes</u>

**SOIL**

Sampling Point: 44

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-11</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): Depth (inches): <u>10</u> Depth (inches): <u>5</u>
		<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		





**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-4</u>	<u>10YR 2/2</u>	<u>100</u>					<u>Silty Clay Loam</u>	
<u>4-18</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)  <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)  <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>Yes</u> Depth (inches): <u>15</u> Saturation Present? <u>Yes</u> Depth (inches): <u>10</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	



**SOIL**

Sampling Point: 45a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-9</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
<u>9-18</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>	
<u>18-26</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>No</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (two or more required)</b>
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	
		<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>Yes</u> Depth (inches): <u>20</u> (includes capillary fringe)		<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 5/11/21  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 46  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 15  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.1807740 Long: -123.1724690 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum (Plot size: __ )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. 3. 4. 5. Total Cover = <u>20</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>30</u> x 1 = <u>30</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>60</u> x 3 = <u>180</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>120</u> (A) <u>270</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Poa palustris</u> 3. <u>Carex nebrascensis</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>30</u> <u>40</u> <u>30</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>FAC</u> <u>OBL</u>	Prevalence Index = B/A = <u>2.25</u>  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 – Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 – Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>10</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> <u>Yes</u>
Remarks:				

**SOIL**

Sampling Point: 46

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-2</u>	<u>10YR 3/2</u>	<u>100</u>					<u>Silty Clay Loam</u>	
<u>2-18</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)  <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)  <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): <u>0</u> Water Table Present? <u>No</u> Depth (inches): <u>0</u> Saturation Present? <u>No</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 5/11/21  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 46a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 15  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.1807660 Long: -123.1724850 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland?</b> <u>No</u>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>  </u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B) <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>5</u> x 1 = <u>5</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>50</u> x 3 = <u>150</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>105</u> (A) <u>295</u> (B)  Prevalence Index = B/A = <u>2.81</u>
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Poa palustris</u> 3. <u>Carex nebrascensis</u> 4. <u>Daucas carota</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>105</u>	<u>30</u> <u>50</u> <u>5</u> <u>20</u>	<u>Yes</u> <u>Yes</u> <u>No</u> <u>Yes</u>	<u>FACW</u> <u>FAC</u> <u>OBL</u> <u>FACU</u>	Prevalence Index = B/A = <u>2.81</u>  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 – Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 – Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>10</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> <u>Yes</u>
Remarks:				



**SOIL**

Sampling Point: 46a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	<u>10YR 3/3</u>	<u>100</u>					<u>Silty Clay Loam</u>	
5-17	<u>10YR 3/2</u>	<u>100</u>					<u>Silty Clay Loam</u>	
17-25	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/6</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)  <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>No</u></b>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> X Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): <u>0</u> Water Table Present? <u>No</u> Depth (inches): <u>0</u> Saturation Present? <u>No</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	



**SOIL**

Sampling Point: 47

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	<u>10YR 3/3</u>	<u>100</u>					<u>Silty Clay Loam</u>	
2-6	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	
6-18	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)  <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)  <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): <u>0</u> Water Table Present? <u>No</u> Depth (inches): <u>0</u> Saturation Present? <u>No</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 5/11/21  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 47a  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 15  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.1719740 Long: -123.159580 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	<b>Is the Sampled Area within a Wetland?</b> <u>No</u>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>  </u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>40</u> x 2 = <u>80</u> FAC species <u>50</u> x 3 = <u>150</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>110</u> (A) <u>310</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. <u>Poa palustris</u> 3. <u>Daucus carota</u> 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>40</u> <u>40</u> <u>20</u>	<u>Yes</u> <u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>FAC</u> <u>FACU</u>	Prevalence Index = B/A = <u>3.1</u>  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% ___ 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>10</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> <u>Yes</u>
Remarks:				

**SOIL**

Sampling Point: 47a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	<u>10YR 3/3</u>	<u>100</u>					<u>Silty Clay Loam</u>	
6-15	<u>10YR 3/2</u>	<u>100</u>					<u>Silty Clay Loam</u>	
15-24	<u>10YR 3/2</u>	<u>99</u>	<u>10YR 4/6</u>	<u>1</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>		<b>Hydric Soil Present? <u>No</u></b>
Remarks:		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1,2,4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): <u>0</u> Water Table Present? <u>No</u> Depth (inches): <u>0</u> Saturation Present? <u>No</u> Depth (inches): <u>0</u> (includes capillary fringe)		<b>Wetland Hydrology Present? <u>No</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 7/7/21  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 48  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 22  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.1636480 Long: -123.1701770 Datum: WGS84  
 Soil Map Unit Name: Wauna silt loam, protected NWI classification: PEM1C  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks: hay field/pasture	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>200</u> (B)  Prevalence Index = B/A = <u>2.00</u>
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Phalaris arundinacea</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test >50% <input checked="" type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 <sup>1</sup> <input type="checkbox"/> 4 – Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present? <u>Yes</u></b>
Remarks:				



**SOIL**

Sampling Point: 48

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-16</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)		
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>						<b>Hydric Soil Present? <u>Yes</u></b>		
Remarks:								

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <b>(except MLRA 1,2,4A, and 4B)</b> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>No</u> (includes capillary fringe)		Depth (inches): Depth (inches): Depth (inches): <b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 7/7/21  
 Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 49  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 22  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.1636480 Long: -123.1701770 Datum: WGS84  
 Soil Map Unit Name: Wauna silt loam, protected NWI classification: PEM1C  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks: hay field/pasture	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. Total Cover = <u>0</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>200</u> (B)  Prevalence Index = B/A = <u>2.00</u>
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Mentha x piperita</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present? <u>Yes</u></b>
Remarks:				



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

Project/Site: NEXT Renewable Fuels Oregon - Mitigation City/County: Columbia Sampling Date: 10/14/2020  
 Applicant/Owner: NEXT Renewable Fuels LLC State: OR Sampling Point: 50  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16350400 Long: -123.17929300 Datum: WGS84  
 Soil Map Unit Name: Wauna-Locoda silt loams, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> ) 1. <u>Populus balsamifera</u> 2. 3. 4. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>200</u> x 3 = <u>600</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>200</u> (A) <u>600</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Ranunculus repens</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index = B/A = <u>3.00</u>  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 – Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 – Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> <u>Yes</u>
Remarks:				



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

Project/Site: NEXT Renewable Fuels Oregon - Mitigation City/County: Columbia Sampling Date: 10/14/2020  
 Applicant/Owner: NEXT Renewable Fuels LLC State: OR Sampling Point: 51  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16368700 Long: -123.17703900 Datum: WGS84  
 Soil Map Unit Name: Wauna-Locoda silt loams, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> ) 1. <u>Populus balsamifera</u> 2. 3. 4. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>25m<sup>2</sup></u> ) 1. <u>Sambucus nigra</u> 2. 3. 4. 5. Total Cover = <u>20</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>220</u> x 3 = <u>660</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>220</u> (A) <u>660</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Ranunculus repens</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>60</u>	<u>60</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index = B/A = <u>3.00</u>  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. Total Cover = <u>40</u>  % Bare Ground in Herb Stratum: <u>40</u>	<u>40</u>	<u>Yes</u>	<u>FAC</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> <u>Yes</u>
Remarks:				



**SOIL**

Sampling Point: 51

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	<u>10YR 3/2</u>	<u>100</u>					<u>Silty Clay Loam</u>	
3-16	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
<b>Primary Indicators (minimum of one required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>Yes</u> Depth (inches): <u>15</u> Saturation Present? <u>Yes</u> Depth (inches): <u>10</u> (includes capillary fringe)	<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: NEXT Renewable Fuels Oregon - Mitigation City/County: Columbia Sampling Date: 10/15/2020  
 Applicant/Owner: NEXT Renewable Fuels LLC State: OR Sampling Point: 52  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16366000 Long: -123.16885600 Datum: WGS84  
 Soil Map Unit Name: Wauna silt loam, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland?</b> <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> ) 1. <u>Populus balsamifera</u> 2. 3. 4. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>125</u> x 3 = <u>375</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>125</u> (A) <u>375</u> (B)  Prevalence Index = B/A = <u>3.00</u>
<u>Herb Stratum</u> (Plot size: <u>40 m<sup>2</sup></u> ) 1. <u>Poa palustris</u> 2. <u>Urtica dioica</u> 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>15</u>	<u>10</u> <u>5</u>	<u>Yes</u> <u>Yes</u>	<u>FAC</u> <u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 – Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 – Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. Total Cover = <u>10</u>  % Bare Ground in Herb Stratum: <u>85</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> <u>Yes</u>
Remarks:				

**SOIL**

Sampling Point: 52

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	<u>10YR 3/2</u>	<u>100</u>					<u>Silty Clay Loam</u>	
5-16	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> )	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**

Type:  
Depth (inches): 0

**Hydric Soil Present? Yes**

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (two or more required)

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

**Field Observations:**

Surface Water Present? No                      Depth (inches):  
 Water Table Present? No                      Depth (inches):  
 Saturation Present? No                      Depth (inches):  
 (includes capillary fringe)

**Wetland Hydrology Present? Yes**

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

Remarks:

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

Project/Site: NEXT Renewable Fuels Oregon - Mitigation City/County: Columbia Sampling Date: 10/15/2020  
 Applicant/Owner: NEXT Renewable Fuels LLC State: OR Sampling Point: 53  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16363800 Long: -123.16636700 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> ) 1. <u>Populus balsamifera</u> 2. 3. 4. Total Cover = <u>100</u>	<u>100</u>	<u>Yes</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>115</u> x 3 = <u>345</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>115</u> (A) <u>345</u> (B)  Prevalence Index = B/A = <u>3.00</u>
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Equisetum arvense</u> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>10</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 – Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 – Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Rubus armeniacus</u> 2. Total Cover = <u>5</u>  % Bare Ground in Herb Stratum: <u>90</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present? <u>Yes</u></b>
Remarks:				

**SOIL**

Sampling Point: 53

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	<u>10YR 3/2</u>	<u>100</u>					<u>Silty Clay Loam</u>	
7-18	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>	<b>Hydric Soil Present? <u>Yes</u></b>
Remarks:	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
<b>Primary Indicators (minimum of one required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <b>(except MLRA 1,2,4A, and 4B)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>No</u> Depth (inches): (includes capillary fringe)	<b>Wetland Hydrology Present? <u>Yes</u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Project/Site: NEXT Renewable Fuels Oregon - Mitigation City/County: Columbia Sampling Date: 10/15/2020  
 Applicant/Owner: NEXT Renewable Fuels LLC State: OR Sampling Point: 54  
 Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16369600 Long: -123.16110500 Datum: WGS84  
 Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)  
 Are Vegetation \_\_, Soil \_\_, or Hydrology \_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  
 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? <u>Yes</u>	<b>Is the Sampled Area within a Wetland? <u>Yes</u></b>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> ) 1. <u>Populus balsamifera</u> 2. 3. 4. Total Cover = <u>50</u>	<u>50</u>	<u>Yes</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>130</u> x 3 = <u>390</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>150</u> (A) <u>430</u> (B)
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> ) 1. <u>Poa palustris</u> 2. <u>Ranunculus repens</u> 3. <u>Rumex crispus</u> 4. <u>Juncus balticus</u> 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>70</u> <u>5</u> <u>5</u> <u>20</u>	<u>Yes</u> <u>No</u> <u>No</u> <u>Yes</u>	<u>FAC</u> <u>FAC</u> <u>FAC</u> <u>FACW</u>	Prevalence Index = B/A = <u>2.87</u>  <b>Hydrophytic Vegetation Indicators:</b> ___ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 – Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 – Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> ) 1. 2. Total Cover = <u>0</u>  % Bare Ground in Herb Stratum: <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present? <u>Yes</u></b>
Remarks:				



**SOIL**

Sampling Point: 54

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-9</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)		
<b>Restrictive Layer (if present):</b> Type: Depth (inches): <u>0</u>						<b>Hydric Soil Present? <u>Yes</u></b>		
Remarks:								

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <b>(except MLRA 1,2,4A, and 4B)</b> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9)( <b>MLRA 1,2,4A,4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<b>Field Observations:</b> Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u> Saturation Present? <u>Yes</u> (includes capillary fringe)		Depth (inches): <u>8</u> Depth (inches): <u>0</u>
<b>Wetland Hydrology Present? <u>Yes</u></b>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

**APPENDIX C**  
**Site Photographs**

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**PHOTOGRAPH 1 - Wetland 1, looking south at Plots 1 and 1a.  
Photograph taken by Sue Brady on November 27, 2018.**



**PHOTOGRAPH 2 - Wetland 1, looking south at Plots 2 and 2a.  
Photograph taken by Sue Brady on November 28, 2018.**



**PHOTOGRAPH 3 - Wetland 1, looking east at Plots 3 and 3a.  
Photograph taken by Sue Brady on November 27, 2018.**



**PHOTOGRAPH 4 - Wetland 1, looking north at Plots 4 and 4a.  
Photograph taken by Sue Brady on November 28, 2018.**





**PHOTOGRAPH 5 - Wetland 1, looking west toward Plots 5 and 5a.  
Photograph taken by Sue Brady on October 23, 2018.**



**PHOTOGRAPH 6 - Wetland 1, looking south at Plots 6, 6a, 7 and 7a.  
Photograph taken by Sue Brady on November 28, 2018.**



**PHOTOGRAPH 7 - Wetland 1, looking west at Plots 8 and 8a.  
Photograph taken by Sue Brady on November 28, 2018.**



**PHOTOGRAPH 8 - Wetland 1, looking east at Plots 9 and 9a.  
Photograph taken by Sue Brady on November 28, 2018.**





**PHOTOGRAPH 9 - Wetland 1, looking south at Plots 10 and 10a.  
Photograph taken by Sue Brady on November 28, 2018.**



**PHOTOGRAPH 10 - Wetland 1, looking north at Plots 11 and 11a.  
Photograph taken by Sue Brady on November 28, 2018.**





**PHOTOGRAPH 11 - Wetland 1, looking south at Plots 12 and 12a.  
Photograph taken by Sue Brady on November 28, 2018.**



**PHOTOGRAPH 12 - Wetland 1, looking north at Plots 17 and 17a.  
Photograph taken by Sue Brady on November 29, 2018.**



**PHOTOGRAPH 13 - Wetland 1, looking west at Plot 13. Photograph taken by Sue Brady on November 29, 2018.**



**PHOTOGRAPH 14 - Wetland 1, looking west at Plot 14. Photograph taken by Sue Brady on November 29, 2018.**





**PHOTOGRAPH 15 - Wetland 1, looking west at Plot 15. Photograph taken by Sue Brady on November 29, 2018.**



**PHOTOGRAPH 16 - Wetland 1, looking west at Plot 16. Photograph taken by Sue Brady on November 29, 2018.**



**PHOTOGRAPH 17 - Wetland 1, looking north at the end of the ditch. Photograph taken by Sue Brady on October 22, 2018.**



**PHOTOGRAPH 18 - Looking west along the ditch at the southern edge of the study area. Photograph taken by Sue Brady on October 22, 2018.**





**PHOTOGRAPH 19 - Looking west along the ditch at the southern edge of the study area. Photograph taken by Sue Brady on October 22, 2018.**



**PHOTOGRAPH 20 - Wetland 1, Looking east at Plot 18. Photograph taken by Sue Brady on October 23, 2018.**





**PHOTOGRAPH 21 - Wetland 1, looking northwest at Plot 19. Photograph taken by Sue Brady on November 29, 2018.**



**PHOTOGRAPH 22 - Wetland 1, Looking west at Plot 20. Photograph taken by Sue Brady on November 29, 2018.**





**PHOTOGRAPH 23 - Wetland 1, looking south at Plots 21 and 21a.  
Photograph taken by Sue Brady on November 29, 2018.**



**PHOTOGRAPH 24 - Wetland 1, Looking south at Plots 22 and 22a.  
Photograph taken by Sue Brady on November 29, 2018.**

**PHOTOGRAPH 25 No longer applicable -  
Plots 23 and 23a removed from study area.**



**PHOTOGRAPH 26 - Wetland 1, Looking southwest at Plots 24 and 24a.  
Photograph taken by Sue Brady on November 29, 2018.**





**PHOTOGRAPH 27 - Wetland 3, looking southeast at Plots 25 and 25a.  
Photograph taken by Sue Brady on November 29, 2018.**



**PHOTOGRAPH 28 - Wetland 3, Looking southeast at Plots 26 and 26a.  
Photograph taken by Sue Brady on November 29, 2018.**





**PHOTOGRAPH 29 - Wetland 4, looking north at Plots 27 and 27a. Photograph taken by Sue Brady on November 29, 2018.**



**PHOTOGRAPH 30 - Wetland 1, Looking east at Plot 28. Photograph taken by Sue Brady on November 29, 2018.**



**PHOTOGRAPH 31 - Wetland 1, looking west at Plot 29. Photograph taken by Sue Brady on April 12, 2019.**



**PHOTOGRAPH 32 - Wetland 1, Looking east at Plot 30. Photograph taken by Sue Brady on April 12, 2019.**





**PHOTOGRAPH 33 - Wetland 1, looking south at Plot 31. Photograph taken by Sue Brady on November 14, 2019.**



**PHOTOGRAPH 34 - Wetland 1, Looking southeast at Plot 32. Photograph taken by Sue Brady on November 14, 2019.**





**PHOTOGRAPH 35 - Wetland 1, looking southeast at Plot 33. Photograph taken by Sue Brady on November 14, 2019.**



**PHOTOGRAPH 36 - Wetland 1, Looking northeast at Plots 34 and 34a. Photograph taken by Sue Brady on November 14, 2019.**



**PHOTOGRAPH 37 - Wetland 1, looking southeast at Plot 35. Photograph taken by Sue Brady on November 14, 2019.**



**PHOTOGRAPH 38 - Wetland 1, Looking northwest at Plot 38. Photograph taken by Sue Brady on November 14, 2019.**





**PHOTOGRAPH 39 - Wetland 2, looking northwest at Plots 40 and 40a.  
Photograph taken by Sue Brady on November 29, 2018.**



**PHOTOGRAPH 40 - Wetland 3, Looking northwest at Plot 41 and 41a.  
Photograph taken by Sue Brady on September 30, 2020.**





**PHOTOGRAPH 41 - Wetland 3, looking northwest at Plots 42 and 42a.  
Photograph taken by Sue Brady on September 30, 2020.**



**PHOTOGRAPH 42 - Wetland 1, Looking northwest at Plot 43.  
Photograph taken by Sue Brady on April 8, 2021.**



**PHOTOGRAPH 43 - Wetland 1, looking northwest at Plot 44. Photograph taken by Sue Brady on April 8, 2021.**



**PHOTOGRAPH 44 - Wetland 1 and intersecting ditches, looking northwest. Photograph taken by Sue Brady on April 8, 2021.**





**PHOTOGRAPH 45 - Wetland 2, looking southeast at Plots 45 and 45a. Photograph taken by Sue Brady on November 29, 2018.**



**PHOTOGRAPH 46 - Wetland 5, looking southeast at Plots 46 and 46a. Photograph taken by Sue Brady on May 11, 2021.**





**PHOTOGRAPH 47 - Wetland 6, looking southeast at Plots 47 and 47a. Photograph taken by Sue Brady on May 11, 2021.**



**PHOTOGRAPH 48 - Wetland 1, looking south at Plot 48. Photograph taken by Sue Brady on July 7, 2021.**





**PHOTOGRAPH 49 - Wetland 1, looking north at Plot 49.  
Photograph taken by Sue Brady on July 7, 2021.**



**PHOTOGRAPH 50 - Wetland 1, looking northeast at Plot 50.  
Photograph taken by Sue Brady on October 14, 2020.**





**PHOTOGRAPH 51 - Wetland 1, looking northwest at Plot 51. Photograph taken by Sue Brady on October 14, 2020.**



**PHOTOGRAPH 52 - Wetland 1, looking northeast at Plot 52. Photograph taken by Sue Brady on October 15, 2020.**





**PHOTOGRAPH 53 - Wetland 1, looking northeast at Plot 53. Photograph taken by Sue Brady on October 15, 2020.**



**PHOTOGRAPH 54 - Wetland 1, looking southwest at Plot 54. Photograph taken by Sue Brady on October 15, 2020.**

**APPENDIX D**  
**Additional Information**

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WETS Station: CLATSKANIE, OR

Requested years: 1971 - 2000

Month	Temperature (°F)			Precipitation (inches)				
	Avg daily max	Avg daily min	Avg daily mean	Avg	30% chance will have		Avg number of days with 0.10 inch or more	Average total snowfall
					less than	more than		
Jan	45.3	33.6	39.5	8.28	5.13	10.00	14	2.4
Feb	49.8	34.8	42.3	6.74	4.56	8.06	13	1.3
Mar	54.6	37.1	45.8	5.94	4.36	6.98	14	0.3
Apr	58.9	39.5	49.2	4.08	2.85	4.85	10	0.0
May	64.2	44.5	54.4	2.70	1.82	3.22	8	0.0
Jun	68.3	49.1	58.7	1.83	1.28	2.17	6	0.0
Jul	73.6	52.6	63.1	0.84	0.40	1.01	2	0.0
Aug	74.6	53.0	63.8	0.96	0.40	1.17	3	0.0
Sep	71.6	48.8	60.2	2.22	0.72	2.65	5	0.0
Oct	61.7	42.3	52.0	4.08	2.17	4.98	8	0.0
Nov	50.7	37.6	44.2	8.84	5.92	10.59	15	0.4
Dec	44.9	33.9	39.4	9.12	6.35	10.83	15	1.4
Annual:					49.06	61.32		
Average	59.8	42.2	51.0	-	-	-	-	-
Total	-	-	-	55.62			114	5.7

GROWING SEASON DATES

Requested years of data:	1971 - 2000		
Years with missing data:	24 deg = 1	28 deg = 1	32 deg = 0
Years with no occurrence:	24 deg = 8	28 deg = 0	32 deg = 0
Data years used:	24 deg = 29	28 deg = 29	32 deg = 30

Probability	Temperature		
	24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	1/24 to 12/22 332 days	3/1 to 11/20 264 days	4/17 to 10/28 194 days
70 percent *	12/29 to 1/17 384 days	2/20 to 11/30 283 days	4/10 to 11/4 208 days

\* Percent chance of the growing season occurring between the Beginning and Ending dates.

Monthly Total Precipitation for CLATSKANIE, OR

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2017	5.27	11.23	11.27	5.38	2.55	1.27	0.02	0.17	2.21	7.39	12.14	5.76	64.66
2018	9.29	4.98	4.21	6.34	0.16	1.00	0.01	0.45	2.52	4.41	5.17	8.43	46.97
2019	4.70	5.62	1.40	4.58	1.69	1.03	1.17	0.40	3.22	3.57	2.59	8.49	38.46
2020	16.44	7.00	3.76	2.20	3.21	2.93	0.58	0.29	4.75	5.12	9.24	7.67	63.19
2021	10.60	M	3.22	1.18	1.72	2.78	M	M	M	M	M	M	M
Mean	9.26	7.21	4.77	3.94	1.87	1.80	0.44	0.33	3.18	5.12	7.29	7.59	53.32

Climatological Data for CLATSKANIE, OR - October 2018

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-10-01	66	52	59.0	19	9	0.00	0.0	0
2018-10-02	65	51	58.0	18	8	0.00	0.0	0
2018-10-03	63	37	50.0	10	0	0.00	0.0	0
2018-10-04	62	39	50.5	11	1	0.00	0.0	0
2018-10-05	61	42	51.5	12	2	0.04	0.0	0
2018-10-06	54	44	49.0	9	0	0.30	0.0	0
2018-10-07	62	43	52.5	13	3	0.23	0.0	0
2018-10-08	53	51	52.0	12	2	0.13	0.0	0
2018-10-09	60	52	56.0	16	6	0.18	0.0	0
2018-10-10	64	48	56.0	16	6	0.00	0.0	0
2018-10-11	64	37	50.5	11	1	0.00	0.0	0
2018-10-12	67	37	52.0	12	2	0.00	0.0	0
2018-10-13	66	37	51.5	12	2	0.00	0.0	0
2018-10-14	65	32	48.5	9	0	0.00	0.0	0
2018-10-15	69	32	50.5	11	1	0.00	0.0	0
2018-10-16	72	36	54.0	14	4	0.00	0.0	0
2018-10-17	73	33	53.0	13	3	0.00	0.0	0
2018-10-18	74	35	54.5	15	5	0.00	0.0	0
2018-10-19	60	37	48.5	9	0	0.00	0.0	0
2018-10-20	56	38	47.0	7	0	0.00	0.0	0
2018-10-21	61	40	50.5	11	1	0.00	0.0	0
2018-10-22	62	39	50.5	11	1	0.00	0.0	0
2018-10-23	64	39	51.5	12	2	0.00	0.0	0
2018-10-24	56	41	48.5	9	0	0.00	0.0	0
2018-10-25	60	46	53.0	13	3	0.28	0.0	0
2018-10-26	60	46	53.0	13	3	0.60	0.0	0
2018-10-27	62	47	54.5	15	5	0.02	0.0	0
2018-10-28	58	49	53.5	14	4	1.39	0.0	0
2018-10-29	56	42	49.0	9	0	0.99	0.0	0
2018-10-30	57	42	49.5	10	0	0.05	0.0	0
2018-10-31	56	48	52.0	12	2	0.20	0.0	0
Average Sum	62.2	41.7	51.9	378	76	4.41	0.0	0.0

Climatological Data for CLATSKANIE, OR - November 2018

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-11-01	54	49	51.5	12	2	0.35	0.0	0
2018-11-02	62	54	58.0	18	8	0.28	0.0	0
2018-11-03	60	50	55.0	15	5	0.05	0.0	0
2018-11-04	58	51	54.5	15	5	0.47	0.0	0
2018-11-05	60	42	51.0	11	1	0.10	0.0	0
2018-11-06	57	40	48.5	9	0	0.23	0.0	0
2018-11-07	56	37	46.5	7	0	0.03	0.0	0
2018-11-08	53	30	41.5	2	0	0.02	0.0	0
2018-11-09	52	29	40.5	1	0	0.00	0.0	0
2018-11-10	47	31	39.0	0	0	0.03	0.0	0
2018-11-11	50	29	39.5	0	0	0.02	0.0	0
2018-11-12	57	28	42.5	3	0	0.00	0.0	0
2018-11-13	59	29	44.0	4	0	0.00	0.0	0
2018-11-14	51	29	40.0	0	0	0.12	0.0	0
2018-11-15	48	42	45.0	5	0	0.00	0.0	0
2018-11-16	53	39	46.0	6	0	0.02	0.0	0
2018-11-17	53	35	44.0	4	0	0.02	0.0	0
2018-11-18	55	28	41.5	2	0	0.01	0.0	0
2018-11-19	54	27	40.5	1	0	0.00	0.0	0
2018-11-20	53	27	40.0	0	0	0.00	0.0	0
2018-11-21	53	27	40.0	0	0	0.02	0.0	0
2018-11-22	48	41	44.5	5	0	0.29	0.0	0
2018-11-23	49	43	46.0	6	0	0.93	0.0	0
2018-11-24	49	32	40.5	1	0	0.29	0.0	0
2018-11-25	46	30	38.0	0	0	0.02	0.0	0
2018-11-26	46	38	42.0	2	0	0.08	0.0	0
2018-11-27	55	45	50.0	10	0	1.05	0.0	0
2018-11-28	53	43	48.0	8	0	0.55	0.0	0
2018-11-29	51	38	44.5	5	0	0.05	0.0	0
2018-11-30	51	39	45.0	5	0	0.14	0.0	0
Average Sum	53.1	36.7	44.9	157	21	5.17	0.0	0.0

Climatological Data for CLATSKANIE, OR - March 2019

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2019-03-01	42	29	35.5	0	0	0.05	0.0	0
2019-03-02	52	26	39.0	0	0	0.00	0.0	0
2019-03-03	53	22	37.5	0	0	0.01	0.0	0
2019-03-04	46	18	32.0	0	0	0.00	0.0	0
2019-03-05	44	18	31.0	0	0	0.00	0.0	0
2019-03-06	49	18	33.5	0	0	0.00	0.0	0
2019-03-07	38	28	33.0	0	0	0.22	T	0
2019-03-08	45	27	36.0	0	0	0.02	T	0
2019-03-09	44	28	36.0	0	0	0.17	0.0	0
2019-03-10	49	23	36.0	0	0	0.00	0.0	0
2019-03-11	53	24	38.5	0	0	0.00	0.0	0
2019-03-12	55	25	40.0	0	0	0.35	0.0	0
2019-03-13	48	38	43.0	3	0	0.27	0.0	0
2019-03-14	52	31	41.5	2	0	0.00	0.0	0
2019-03-15	54	31	42.5	3	0	0.00	0.0	0
2019-03-16	62	33	47.5	8	0	0.00	0.0	0
2019-03-17	70	31	50.5	11	1	0.00	0.0	0
2019-03-18	70	30	50.0	10	0	0.00	0.0	0
2019-03-19	73	33	53.0	13	3	0.00	0.0	0
2019-03-20	74	35	54.5	15	5	0.00	0.0	0
2019-03-21	74	38	56.0	16	6	0.00	0.0	0
2019-03-22	59	34	46.5	7	0	0.00	0.0	0
2019-03-23	54	38	46.0	6	0	0.03	0.0	0
2019-03-24	57	36	46.5	7	0	0.00	0.0	0
2019-03-25	60	36	48.0	8	0	0.00	0.0	0
2019-03-26	50	33	41.5	2	0	0.13	0.0	0
2019-03-27	59	31	45.0	5	0	0.00	0.0	0
2019-03-28	51	34	42.5	3	0	0.15	0.0	0
2019-03-29	51	32	41.5	2	0	0.00	0.0	0
2019-03-30	67	34	50.5	11	1	0.00	0.0	0
2019-03-31	68	33	50.5	11	1	0.00	0.0	0
Average Sum	55.6	29.9	42.7	143	17	1.40	T	0.0



Climatological Data for CLATSKANIE, OR - April 2019

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2019-04-01	69	33	51.0	11	1	0.00	0.0	0
2019-04-02	67	46	56.5	17	7	0.05	0.0	0
2019-04-03	60	47	53.5	14	4	0.51	0.0	0
2019-04-04	59	41	50.0	10	0	0.03	0.0	0
2019-04-05	59	44	51.5	12	2	0.19	0.0	0
2019-04-06	58	40	49.0	9	0	0.42	0.0	0
2019-04-07	59	40	49.5	10	0	0.70	0.0	0
2019-04-08	55	46	50.5	11	1	0.02	0.0	0
2019-04-09	62	46	54.0	14	4	0.43	0.0	0
2019-04-10	56	44	50.0	10	0	0.08	0.0	0
2019-04-11	52	46	49.0	9	0	0.79	0.0	0
2019-04-12	52	46	49.0	9	0	0.35	0.0	0
2019-04-13	57	42	49.5	10	0	0.00	0.0	0
2019-04-14	53	38	45.5	6	0	0.25	0.0	0
2019-04-15	51	37	44.0	4	0	0.15	0.0	0
2019-04-16	52	42	47.0	7	0	0.12	0.0	0
2019-04-17	58	46	52.0	12	2	0.18	0.0	0
2019-04-18	63	44	53.5	14	4	0.05	0.0	0
2019-04-19	71	49	60.0	20	10	0.00	0.0	0
2019-04-20	71	48	59.5	20	10	0.18	0.0	0
2019-04-21	62	44	53.0	13	3	0.00	0.0	0
2019-04-22	59	37	48.0	8	0	0.00	0.0	0
2019-04-23	59	42	50.5	11	1	0.08	0.0	0
2019-04-24	56	38	47.0	7	0	0.00	0.0	0
2019-04-25	63	34	48.5	9	0	0.00	0.0	0
2019-04-26	69	35	52.0	12	2	0.00	0.0	0
2019-04-27	58	45	51.5	12	2	0.00	0.0	0
2019-04-28	55	37	46.0	6	0	0.00	0.0	0
2019-04-29	63	33	48.0	8	0	0.00	0.0	0
2019-04-30	66	33	49.5	10	0	0.00	0.0	0
Average Sum	59.8	41.4	50.6	325	53	4.58	0.0	0.0

Climatological Data for CLATSKANIE, OR - November 2019

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2019-11-01	54	24	39.0	0	0	0.00	0.0	0
2019-11-02	60	28	44.0	4	0	0.00	0.0	0
2019-11-03	61	28	44.5	5	0	0.00	0.0	0
2019-11-04	52	35	43.5	4	0	0.00	0.0	0
2019-11-05	55	35	45.0	5	0	0.00	0.0	0
2019-11-06	52	34	43.0	3	0	0.00	0.0	0
2019-11-07	59	30	44.5	5	0	0.00	0.0	0
2019-11-08	59	30	44.5	5	0	0.00	0.0	0
2019-11-09	57	38	47.5	8	0	0.06	0.0	0
2019-11-10	53	44	48.5	9	0	0.09	0.0	0
2019-11-11	55	46	50.5	11	1	0.00	0.0	0
2019-11-12	64	42	53.0	13	3	0.10	0.0	0
2019-11-13	49	46	47.5	8	0	0.07	0.0	0
2019-11-14	56	39	47.5	8	0	0.00	0.0	0
2019-11-15	55	39	47.0	7	0	0.20	0.0	0
2019-11-16	56	39	47.5	8	0	0.08	0.0	0
2019-11-17	55	39	47.0	7	0	0.08	0.0	0
2019-11-18	54	50	52.0	12	2	0.15	0.0	0
2019-11-19	53	46	49.5	10	0	0.96	0.0	0
2019-11-20	53	31	42.0	2	0	0.05	0.0	0
2019-11-21	53	29	41.0	1	0	0.00	0.0	0
2019-11-22	51	27	39.0	0	0	0.00	0.0	0
2019-11-23	51	27	39.0	0	0	0.03	0.0	0
2019-11-24	49	37	43.0	3	0	0.17	0.0	0
2019-11-25	52	35	43.5	4	0	0.38	0.0	0
2019-11-26	50	34	42.0	2	0	0.10	0.0	0
2019-11-27	40	31	35.5	0	0	0.07	0.0	0
2019-11-28	47	24	35.5	0	0	0.00	0.0	0
2019-11-29	45	21	33.0	0	0	0.00	0.0	0
2019-11-30	40	18	29.0	0	0	0.00	0.0	0
Average Sum	53.0	34.2	43.6	144	6	2.59	0.0	0.0

Climatological Data for CLATSKANIE, OR - September 2020

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2020-09-01	73	49	61.0	21	11	0.00	0.0	0
2020-09-02	83	55	69.0	29	19	0.00	0.0	0
2020-09-03	81	51	66.0	26	16	0.00	0.0	0
2020-09-04	91	55	73.0	33	23	0.00	0.0	0
2020-09-05	72	56	64.0	24	14	0.00	0.0	0
2020-09-06	85	49	67.0	27	17	0.00	0.0	0
2020-09-07	86	57	71.5	32	22	0.00	0.0	0
2020-09-08	84	47	65.5	26	16	0.00	0.0	0
2020-09-09	82	43	62.5	23	13	0.00	0.0	0
2020-09-10	88	46	67.0	27	17	0.00	0.0	0
2020-09-11	88	46	67.0	27	17	0.00	0.0	0
2020-09-12	58	49	53.5	14	4	0.00	0.0	0
2020-09-13	64	48	56.0	16	6	0.00	0.0	0
2020-09-14	68	50	59.0	19	9	0.00	0.0	0
2020-09-15	71	58	64.5	25	15	0.11	0.0	0
2020-09-16	73	56	64.5	25	15	0.00	0.0	0
2020-09-17	71	58	64.5	25	15	0.00	0.0	0
2020-09-18	71	60	65.5	26	16	0.55	0.0	0
2020-09-19	64	55	59.5	20	10	1.30	0.0	0
2020-09-20	67	55	61.0	21	11	0.22	0.0	0
2020-09-21	72	51	61.5	22	12	0.00	0.0	0
2020-09-22	72	51	61.5	22	12	0.00	0.0	0
2020-09-23	72	55	63.5	24	14	0.16	0.0	0
2020-09-24	63	53	58.0	18	8	1.60	0.0	0
2020-09-25	69	55	62.0	22	12	0.32	0.0	0
2020-09-26	67	50	58.5	19	9	0.09	0.0	0
2020-09-27	67	49	58.0	18	8	0.19	0.0	0
2020-09-28	69	45	57.0	17	7	0.11	0.0	0
2020-09-29	79	47	63.0	23	13	0.04	0.0	0
2020-09-30	80	47	63.5	24	14	0.06	0.0	0
Average Sum	74.3	51.5	62.9	695	395	4.75	0.0	0.0

Climatological Data for CLATSKANIE, OR - March 2021

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2021-03-01	53	33	43.0	3	0	0.00	0.0	0
2021-03-02	56	37	46.5	7	0	0.00	0.0	0
2021-03-03	49	29	39.0	0	0	0.00	0.0	0
2021-03-04	49	28	38.5	0	0	0.00	0.0	0
2021-03-05	54	29	41.5	2	0	0.09	0.0	0
2021-03-06	51	34	42.5	3	0	0.01	0.0	0
2021-03-07	49	37	43.0	3	0	0.25	0.0	0
2021-03-08	48	28	38.0	0	0	0.00	0.0	0
2021-03-09	53	28	40.5	1	0	0.07	0.0	0
2021-03-10	54	34	44.0	4	0	0.00	0.0	0
2021-03-11	54	29	41.5	2	0	0.01	0.0	0
2021-03-12	57	28	42.5	3	0	0.03	0.0	0
2021-03-13	59	28	43.5	4	0	0.01	0.0	0
2021-03-14	60	36	48.0	8	0	0.03	0.0	0
2021-03-15	47	28	37.5	0	0	0.12	0.0	0
2021-03-16	47	25	36.0	0	0	0.00	0.0	0
2021-03-17	52	28	40.0	0	0	0.00	0.0	0
2021-03-18	62	30	46.0	6	0	0.12	0.0	0
2021-03-19	51	34	42.5	3	0	0.37	0.0	0
2021-03-20	53	40	46.5	7	0	0.75	0.0	0
2021-03-21	53	36	44.5	5	0	0.09	0.0	0
2021-03-22	46	41	43.5	4	0	0.32	0.0	0
2021-03-23	50	30	40.0	0	0	0.08	0.0	0
2021-03-24	55	38	46.5	7	0	0.05	0.0	0
2021-03-25	49	40	44.5	5	0	0.26	0.0	0
2021-03-26	52	32	42.0	2	0	0.00	0.0	0
2021-03-27	54	35	44.5	5	0	0.00	0.0	0
2021-03-28	58	35	46.5	7	0	0.00	0.0	0
2021-03-29	50	34	42.0	2	0	0.56	0.0	0
2021-03-30	52	29	40.5	1	0	0.00	0.0	0
2021-03-31	51	28	39.5	0	0	0.00	0.0	0
Average Sum	52.5	32.3	42.4	94	0	3.22	0.0	0.0

Climatological Data for CLATSKANIE, OR - April 2021

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2021-04-01	70	33	51.5	12	2	0.00	0.0	0
2021-04-02	58	35	46.5	7	0	0.00	0.0	0
2021-04-03	58	35	46.5	7	0	0.00	0.0	0
2021-04-04	63	44	53.5	14	4	0.00	0.0	0
2021-04-05	54	28	41.0	1	0	0.00	0.0	0
2021-04-06	57	29	43.0	3	0	0.00	0.0	0
2021-04-07	60	41	50.5	11	1	0.02	0.0	0
2021-04-08	52	38	45.0	5	0	0.18	0.0	0
2021-04-09	53	28	40.5	1	0	0.00	0.0	0
2021-04-10	53	34	43.5	4	0	0.15	0.0	0
2021-04-11	51	27	39.0	0	0	0.00	0.0	0
2021-04-12	56	29	42.5	3	0	0.00	0.0	0
2021-04-13	63	31	47.0	7	0	0.00	0.0	0
2021-04-14	65	31	48.0	8	0	0.00	0.0	0
2021-04-15	69	34	51.5	12	2	0.00	0.0	0
2021-04-16	76	37	56.5	17	7	0.00	0.0	0
2021-04-17	81	37	59.0	19	9	0.00	0.0	0
2021-04-18	82	39	60.5	21	11	0.00	0.0	0
2021-04-19	75	42	58.5	19	9	0.00	0.0	0
2021-04-20	69	42	55.5	16	6	0.00	0.0	0
2021-04-21	73	45	59.0	19	9	0.00	0.0	0
2021-04-22	69	45	57.0	17	7	0.00	0.0	0
2021-04-23	61	38	49.5	10	0	0.00	0.0	0
2021-04-24	61	38	49.5	10	0	0.38	0.0	0
2021-04-25	51	42	46.5	7	0	0.26	0.0	0
2021-04-26	55	42	48.5	9	0	0.18	0.0	0
2021-04-27	60	39	49.5	10	0	0.00	0.0	0
2021-04-28	61	37	49.0	9	0	0.00	0.0	0
2021-04-29	68	42	55.0	15	5	0.00	0.0	0
2021-04-30	69	47	58.0	18	8	0.01	0.0	0
Average Sum	63.1	37.0	50.0	311	80	1.18	0.0	0.0



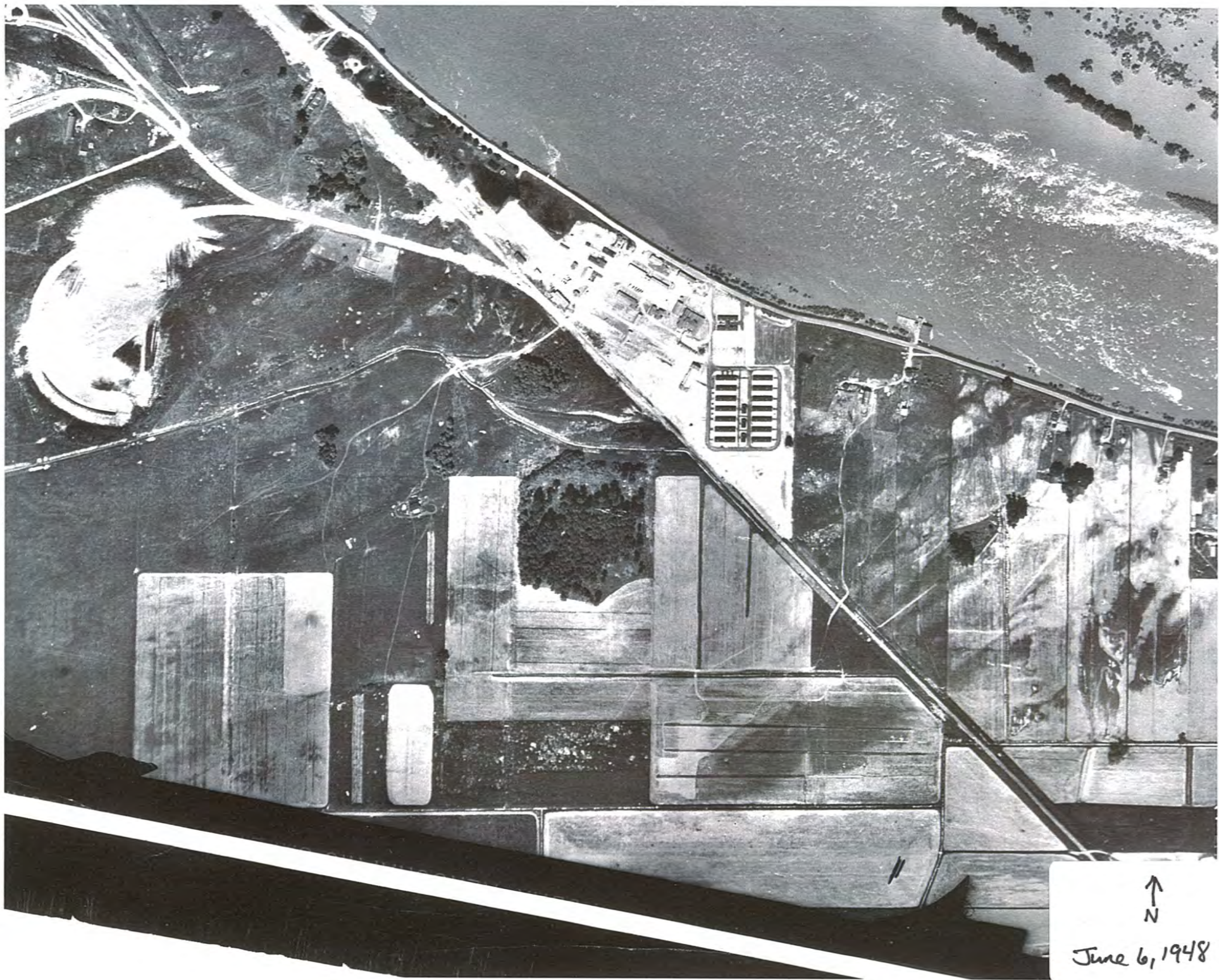
Climatological Data for CLATSKANIE, OR - May 2021

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2021-05-01	59	48	53.5	14	4	0.00	0.0	0
2021-05-02	60	40	50.0	10	0	0.00	0.0	0
2021-05-03	64	41	52.5	13	3	0.00	0.0	0
2021-05-04	56	47	51.5	12	2	0.00	0.0	0
2021-05-05	64	37	50.5	11	1	0.00	0.0	0
2021-05-06	80	44	62.0	22	12	0.00	0.0	0
2021-05-07	61	42	51.5	12	2	0.37	0.0	0
2021-05-08	57	40	48.5	9	0	0.23	0.0	0
2021-05-09	58	40	49.0	9	0	0.06	0.0	0
2021-05-10	62	42	52.0	12	2	0.00	0.0	0
2021-05-11	64	39	51.5	12	2	0.00	0.0	0
2021-05-12	71	47	59.0	19	9	0.00	0.0	0
2021-05-13	72	47	59.5	20	10	0.00	0.0	0
2021-05-14	72	49	60.5	21	11	0.00	0.0	0
2021-05-15	67	45	56.0	16	6	0.00	0.0	0
2021-05-16	59	49	54.0	14	4	0.00	0.0	0
2021-05-17	59	49	54.0	14	4	0.00	0.0	0
2021-05-18	60	42	51.0	11	1	0.06	0.0	0
2021-05-19	58	35	46.5	7	0	0.22	0.0	0
2021-05-20	58	35	46.5	7	0	0.13	0.0	0
2021-05-21	60	41	50.5	11	1	0.00	0.0	0
2021-05-22	60	48	54.0	14	4	0.00	0.0	0
2021-05-23	63	48	55.5	16	6	0.02	0.0	0
2021-05-24	63	48	55.5	16	6	0.14	0.0	0
2021-05-25	60	50	55.0	15	5	0.16	0.0	0
2021-05-26	60	49	54.5	15	5	0.00	0.0	0
2021-05-27	66	47	56.5	17	7	0.19	0.0	0
2021-05-28	60	47	53.5	14	4	0.14	0.0	0
2021-05-29	66	38	52.0	12	2	0.00	0.0	0
2021-05-30	77	44	60.5	21	11	0.00	0.0	0
2021-05-31	78	44	61.0	21	11	0.00	0.0	0
Average Sum	63.7	43.9	53.8	437	135	1.72	0.0	0.0

Climatological Data for CLATSKANIE, OR - June 2021

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2021-06-01	82	52	67.0	27	17	0.00	0.0	0
2021-06-02	89	52	70.5	31	21	0.00	0.0	0
2021-06-03	78	54	66.0	26	16	0.00	0.0	0
2021-06-04	71	45	58.0	18	8	0.00	0.0	0
2021-06-05	72	45	58.5	19	9	0.06	0.0	0
2021-06-06	60	43	51.5	12	2	0.22	0.0	0
2021-06-07	60	43	51.5	12	2	0.46	0.0	0
2021-06-08	62	43	52.5	13	3	0.22	0.0	0
2021-06-09	63	40	51.5	12	2	0.10	0.0	0
2021-06-10	63	42	52.5	13	3	0.05	0.0	0
2021-06-11	64	48	56.0	16	6	0.03	0.0	0
2021-06-12	59	46	52.5	13	3	0.10	0.0	0
2021-06-13	74	57	65.5	26	16	0.63	0.0	0
2021-06-14	61	56	58.5	19	9	0.75	0.0	0
2021-06-15	68	47	57.5	18	8	0.00	0.0	0
2021-06-16	68	45	56.5	17	7	0.16	0.0	0
2021-06-17	74	46	60.0	20	10	0.00	0.0	0
2021-06-18	76	47	61.5	22	12	0.00	0.0	0
2021-06-19	76	45	60.5	21	11	0.00	0.0	0
2021-06-20	73	56	64.5	25	15	0.00	0.0	0
2021-06-21	85	54	69.5	30	20	0.00	0.0	0
2021-06-22	84	57	70.5	31	21	0.00	0.0	0
2021-06-23	84	55	69.5	30	20	0.00	0.0	0
2021-06-24	71	53	62.0	22	12	0.00	0.0	0
2021-06-25	78	55	66.5	27	17	0.00	0.0	0
2021-06-26	90	59	74.5	35	25	0.00	0.0	0
2021-06-27	99	62	80.5	41	31	0.00	0.0	0
2021-06-28	103	66	84.5	45	35	0.00	0.0	0
2021-06-29	91	60	75.5	36	26	0.00	0.0	0
2021-06-30	75	58	66.5	27	17	0.00	0.0	0
Average Sum	75.1	51.0	63.1	704	404	2.78	0.0	0.0

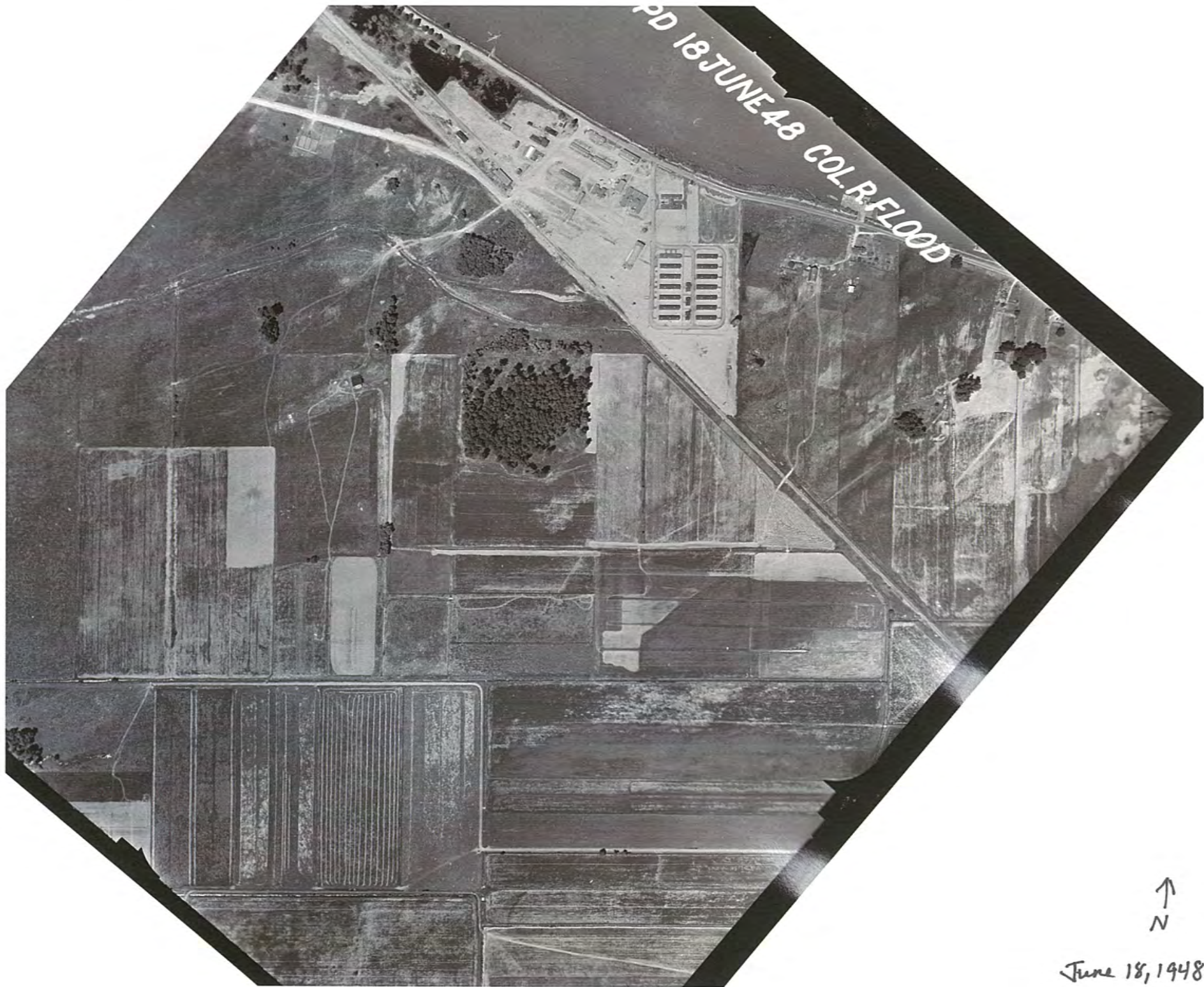




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June 6, 1948



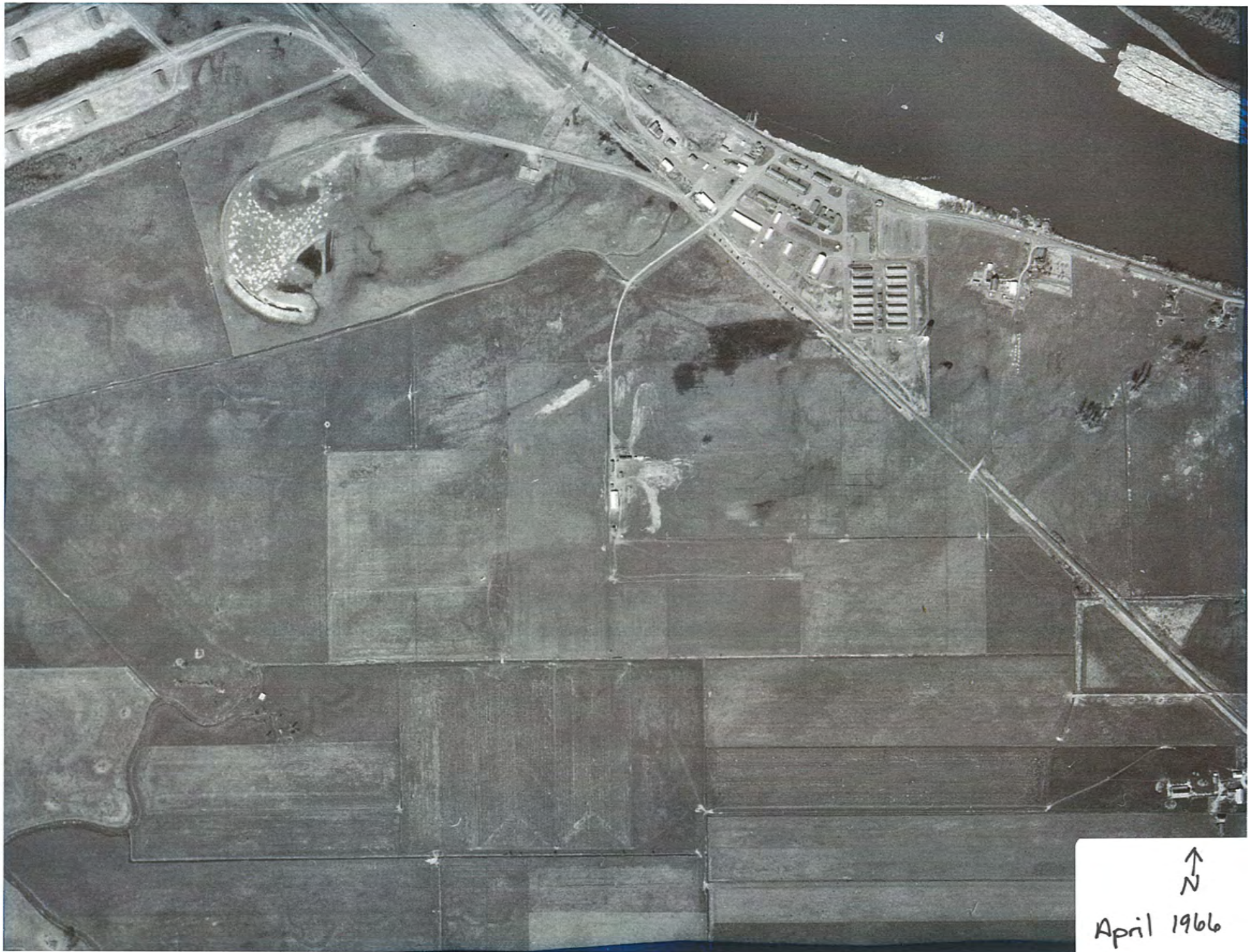


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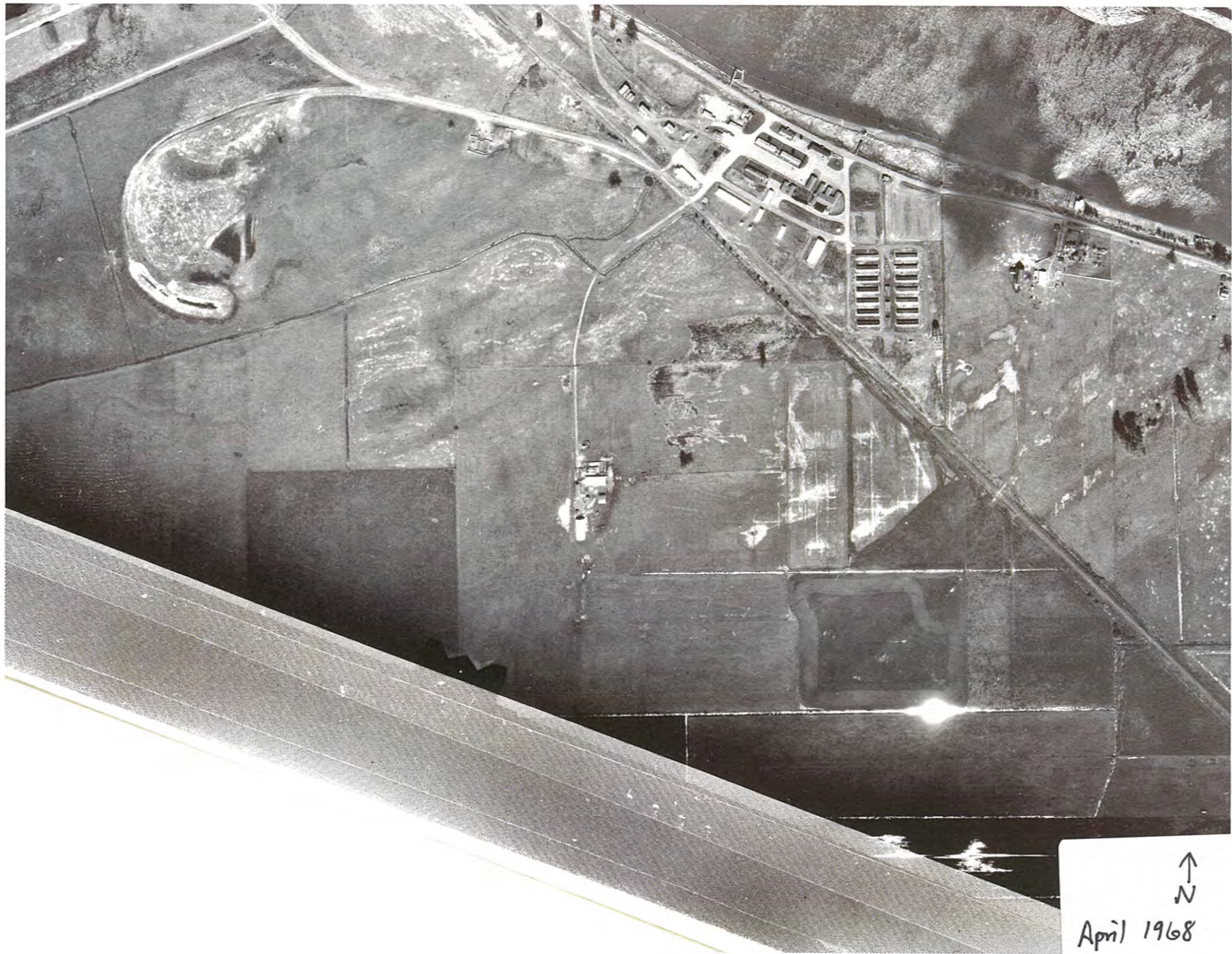




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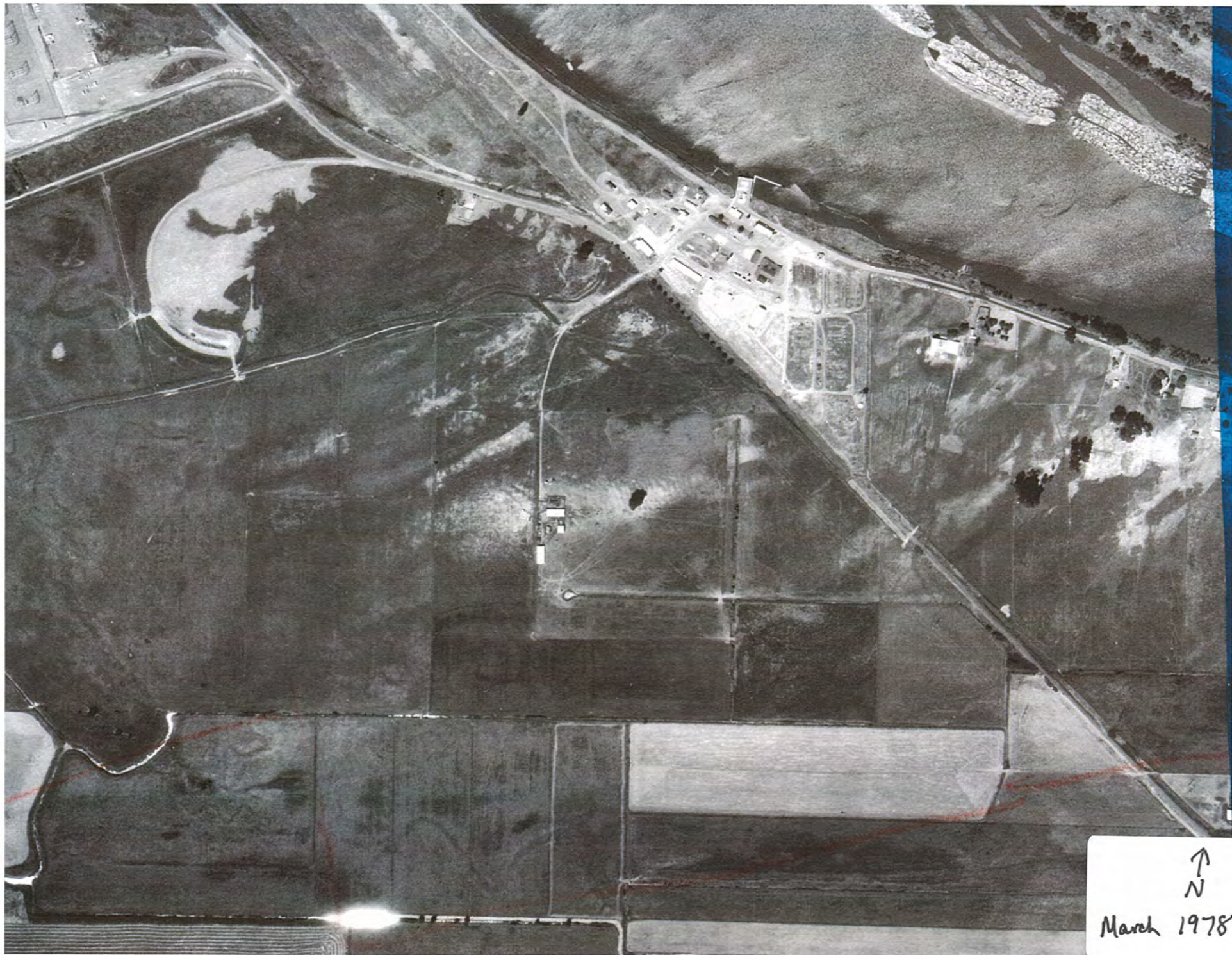
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April 1968

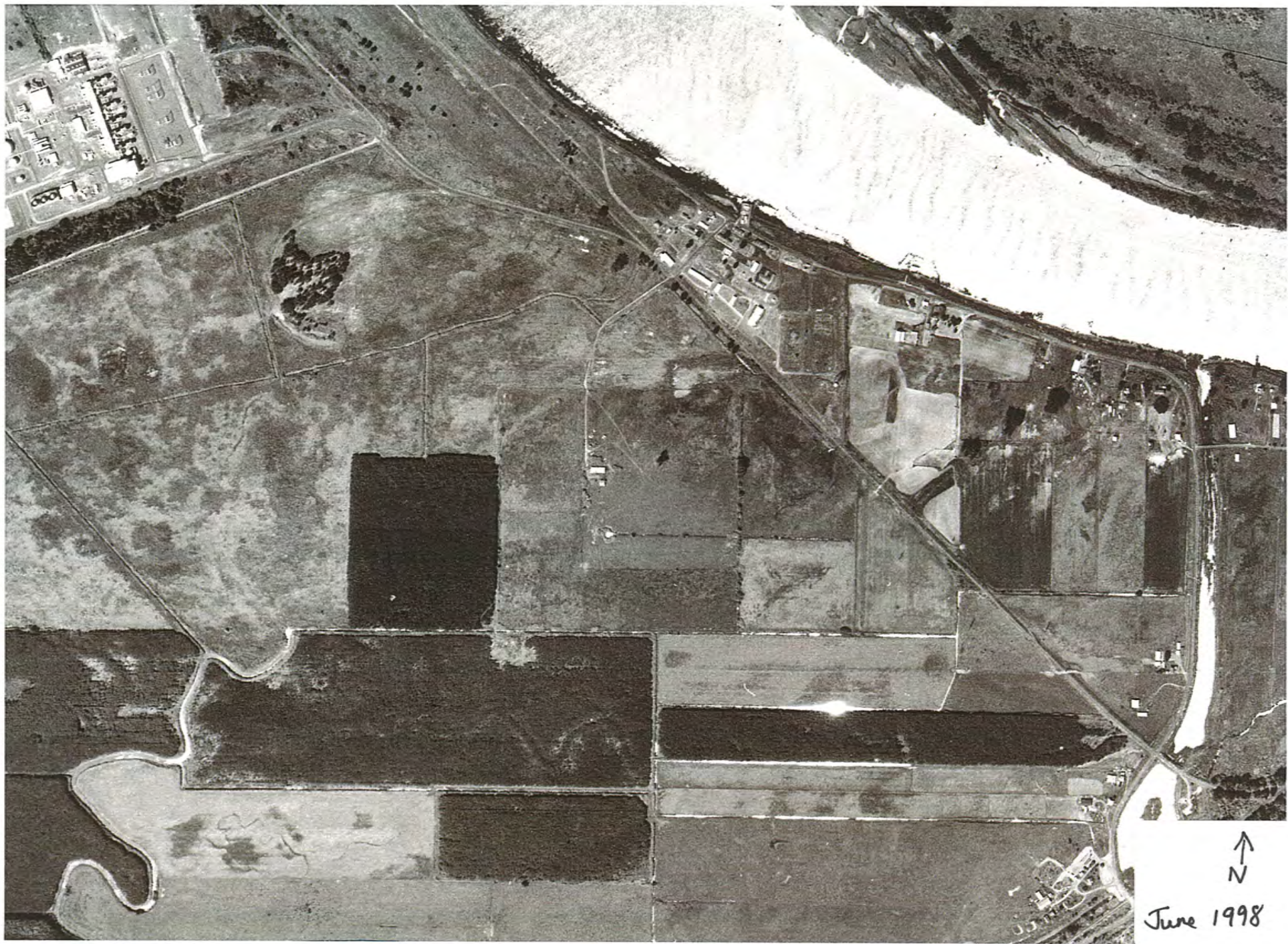




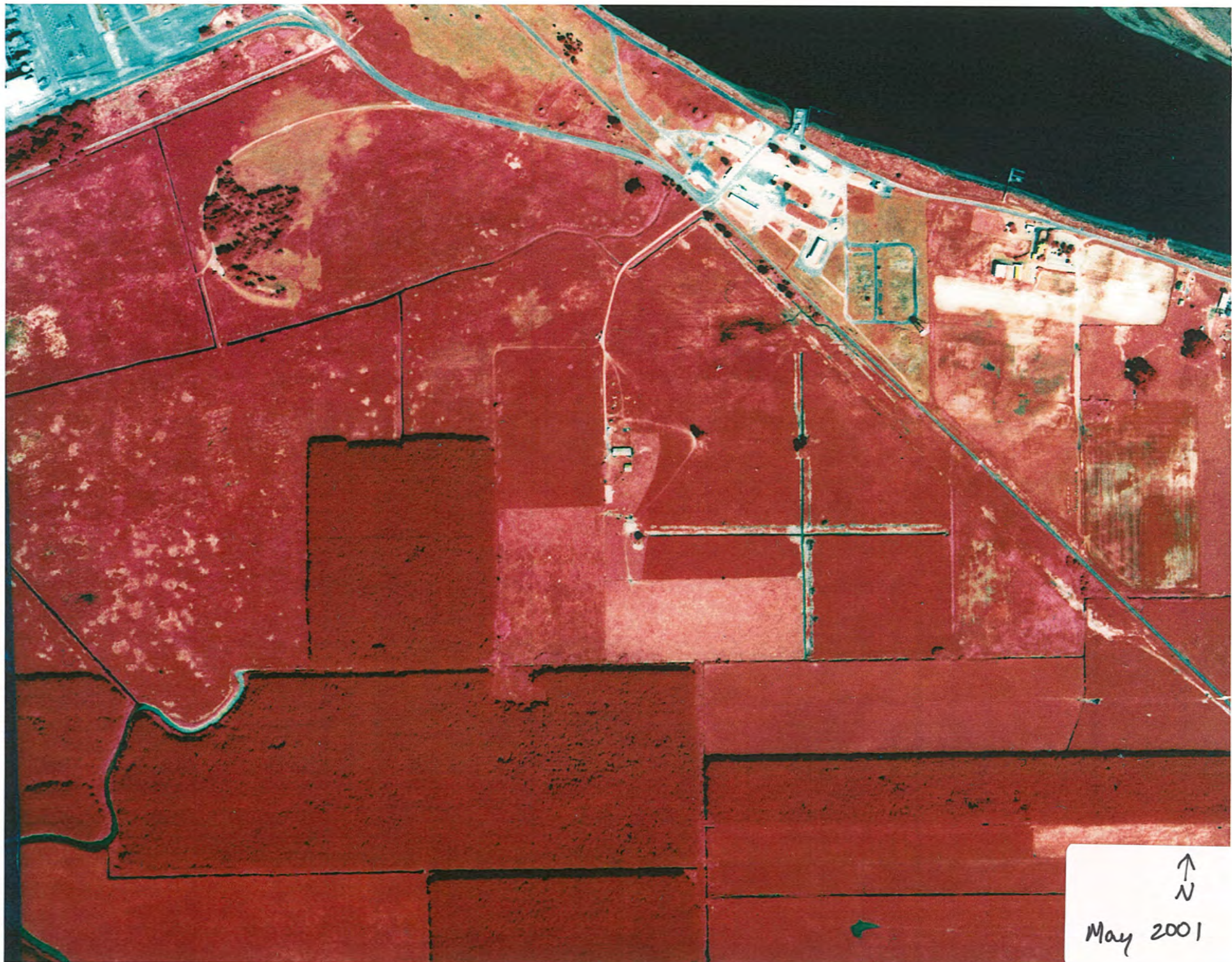
↑  
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March 1978









N

May 2001



**APPENDIX E**  
**Literature Citations and References**

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