

DSL# 63077-RF NEXT Renewable Fuels

December 15, 2021

DSL Comments and OFWAM Assessment Notes and Rationale:

For purposes of making a recommendation to Columbia County DSL asked NEXT Renewables to prepare an OFWAM assessment to determine if the wetland proposed for impact by NEXT Renewable Fuels, is a significant wetland. The OFWAM assessment prepared by NEXT Renewable Fuels was reviewed by Dan Cary, Aquatic Resource Coordinator and certified senior professional wetland scientist (SWSCP) with many years of local wetland inventory work and use of OFWAM. After review, corrections were made by NEXT Renewable Fuels and the document accompanying this memo is the approved results.

The questions regarding Wetlands of Special Interest for Protection (WSIP) and the wetland characterization questions assist the person assessing the wetlands but do not result in determining wetland significance. In a local wetland inventory report, this information is helpful to help anyone using the LWI to understand the character of the wetlands assessed. A yes to any of the WISP questions will place the wetland into this category and management decisions could be made to protect the site.

To make a recommendation regarding this individual wetland, DSL focused on the Function and Condition Assessment Questions. The results from these assessments fit into the locally significant wetland (LSW) Oregon Administrative Rules (OAR 141-086) as one of the Mandatory LSW Criteria.

Assumption: The wetland as mapped was based on review of the nearly 1000 acres of wetland delineated and reviewed by DSL. Un-delineated portions of the Beaver Drainage District share a similar topography, elevation and water management. The entire Beaver Drainage District was considered to be mostly all wetland, one wetland for purposes of this assessment.

In addition to the rationale listed in the answer sheet the following is clarification regarding key questions and how they were answered to understand the rationale for how the answers were chosen. They become very important scores in determining the level of various functions of the wetland. Many of the same questions are asked in other sections of the assessment. The answers were consistent.

Wildlife Habitat

3. Scored "c.: Low. As interpreted and applied to hundreds of wetlands in previous local wetland inventories, this large wetland with large – hundreds of acres of monoculture cottonwood plantations -palustrine forested wetland (PFO) in rectangular blocks adjacent to large -hundreds of acres of palustrine emergent wetlands pastureland in rectangular blocks was considered low interspersed Cowardin classes. This is in contrast to a wetland with many small, complex irregular patches of different Cowardin classes or upland islands – high interspersed, with moderate interspersed somewhere in between.

4. Scored "b." Between 0.5 to 3 acres OFWAM is inconsistent in its definition of "open water". Question #21 of the wetland characterization questions defines "open water" as "deep water habitat", greater than or equal to 6.6 feet deep. The rest of the "open water" questions don't define "open water". The glossary defines "open water" as less than 6.6 feet. The definition of "greater than 6.6 feet" was applied as defined in question 21 in the wetland characterization questions for answers to all questions regarding "open water".

7. Scored "a." In review of LiDAR there does not appear to be any isolation of Tank Creek and another small stream south of Tank Creek. They are both intermittent streams and appear to flow into the drainage district and are not mapped as water quality limited streams. All other historical tributaries to the drainage district

wetland are isolated by levees and canals outside of the levees and have no influence on the wetland. This also applies to the Columbia River.

9a. Scored "b." Pasture or other lands that were not in regular cultivation were considered "upland wildlife habitat". A review of historical Google Earth photos and ground observations verified this.

NEXT Renewable Fuels

OFWAM - Port Westward Industrial Park, Columbia County, Oregon

According to the Columbia County Zoning Ordinance 1182, significant wetlands are defined as follows: "A significant wetland is an area that is inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Further, comprehensive plan Article X A. 4. States, "All wetlands identified in the SWI and/or LWs are significant for the purposes of Goal 5." See sections 2 & 3 also. Section 1182 also states "In case of dispute over whether an area is of biological value and should be considered a significant wetland, the County shall obtain the recommendation of the Oregon Department of Fish and Wildlife, the Columbia County Soil and Water Conservation District, and the Division of State Land". This report is being provided as a tool to assist the Department of State Lands and other agencies in determining the significance of wetlands that would be impacted by the Project.

Statewide Planning Goal 5 directs local governments to inventory the resources in their jurisdiction, including wetlands, and identify which resources are "significant" to their planning goals. Historically, the Oregon Freshwater Wetland Assessment Methodology (OFWAM) was utilized as a planning tool for planning departments to better understand the degrees of functions of wetlands. OFWAM is not a regulatory tool rather a tool for planning. Once wetlands are identified and degrees of functions are assigned, the planners identify wetlands that are "significant" based on Division 16 LSW rules. In context of LWI for Goal 5 compliance their degrees of functions and how they fit in to the overall planning goals. NEXT has been asked to complete the OFWAM Assessment for the area where the proposed facility will be located.

The following report was completed using the Oregon Freshwater Wetland Assessment Method (OFWAM). OFWAM is a *tool* for planning departments not a regulatory instrument. The results from OFWAM should be used alongside local government planning goals to make the best use of land for the environment, economy, and community as a whole. The OFWAM manual states, "as with any form of land-use planning, there is no substitute for critical thinking, and nothing more potentially disastrous than uncritical adherence to a formula or procedure. However, following this procedure does provide consistent guidance." (OFWAM manual, page 7).

OFWAM begins by assessing the watershed as a whole, and then characterizing wetlands of interest. After the characterization, an assessment tool is used to determine relative significance of wetland functions. Finally, the results are summarized, and recommendations made. Please note that, for purposes of CCZO section 1182, DSL's determination of "significance" applies to the entire wetland containing areas proposed to be disturbed by construction of the Next Renewable Fuels facility, which are those areas abutting the south line of PGE's tank farm.

For this analysis, the area inside the levee was assessed. The wetland is quite large and makes up almost the entirety of the Beaver Drainage District. Although not all areas have been delineated, it is likely that those areas that have not yet been delineated are also wetland based on hydric soils, precipitation, and vegetation observed across the area.

In this report, each of the sections for OFWAM were completed, and figures are attached.

- Wetlands of Special Interest for Protection
- Watershed Characterization
- Wetlands Characterization
- Assessment Results

- Wetland Summary
- Watershed Summary
- Attached Figures 1-3

Based on the finding of the OFWAM Assessment tool, the wetlands located behind the levee (inside the levee within the Beaver Drainage District and associated with the propose NEXT Project) in the Resource Industrial Planned Development area at Port Westwards are NOT significant, nor are the wetlands that continue off the project site that were converted for farming and are zoned Primary Agriculture.

OFWAM Method

Wetlands of Special Interest for Protection

Questions		Wetland B	
		YES	NO
1	Does the wetland contain threatened, endangered or sensitive species of wildlife, plants, invertebrates, or fish?	X	
	<i>Either federal or state listed. If yes, list species.</i> There are four species listed as "threatened" on the USFWS list: Columbian white-tailed deer, Streaked Horned Lark, Nelson's Checker-Mallow, and Kincaid's Lupine.	There are four species listed as "threatened" on the USFWS list that could be in the area: Columbian white-tailed deer, Streaked Horned Lark, Nelson's Checker-Mallow, and Kincaid's Lupine.	
2	Is the wetland designated as critical habitat or essential habitat for federal or state-listed threatened or endangered species of wildlife, plants, invertebrates or fish?		X
	<i>If yes, list species.</i>		
3	Is the wetland a dedicated or proposed Registered State Natural Area or Area of Critical Environmental Concern, State Natural Heritage Conservation Area, Federal Research Natural Area, or a Nature Conservancy Preserve?		X
4	Is the wetland of regional or national significance for migratory birds?		X
5	Is the wetland protected in a local wetland conservation plan or a local comprehensive plan as a Goal 5 or Goal 17 resource?	County Comprehensive Plan, Goal 5, not yet approved by DSL.	
6	Is the wetland a designated State Outstanding Resource Water?		X
7	Is the wetland a protected area in a recognized federal, state, or local management plan, e.g., for a park, refuge or scenic river?		X
8	Is the wetland a protected mitigation site for a removal-fill permit, federal 404 fill permit, or enforcement action?	X	

	<i>Protected means there is a legal instrument, such as a conservation easement, that will preclude a wetland impact permit from being issued for this site.</i>	There are two small mitigation sites north of the PGE facility, that are behind the levee.	
9	Is the wetland a restoration or protected area included in the wetland reserve program administered by the Natural Resources Conservation Service? <i>The length of protection may vary depending on landowner agreements.</i>		X
10	Is the wetland considered rare or unique in Oregon? <i>Examples include bogs, vernal pools and old growth forested wetlands.</i>		X

OFWAM Wetland Characterization

Watershed Setting

Drainage Basin

1. The drainage basin that contains the assessment area is North Coast, as determined by the Oregon Water Resources Department.

Physical Characteristics

Topography

2. The area of the HUC-12 watershed Lower Beaver Creek-Frontal Columbia River is 17.51 square miles, or 11,208.12 acres.
3. The average slope of the watershed is 0-3%

Hydrologic Profile

4. The streamflow in the watershed is modified by dams, channelization, and levees.
 - a. Tributary streams to the main stem are modified.
 - b. **Main stem stream is modified.**
 - c. Stream flow is not modified (free-flowing).
5. Water is being taken out of the stream(s) through active diking, drainage or irrigation districts in the watershed upstream of the assessment area?
 - a. **Yes.**
 - b. No.

Land Use

6. What is the dominant land use in the watershed upstream from the assessment area?
 - a. Urban
 - b. Urbanizing (mix of urban, agriculture, and forest uses).
 - c. Agriculture (farming, ranching or grazing).
 - d. **Forested or natural area.**

Water Quality

7. Consult the most recent State of Oregon Department of Environmental Quality 305(b) Report to determine whether any streams are listed as *water quality limited*.

Watershed Notes

Most of the wetlands in the watershed are cut off from the Columbia River by the levee as shown in Figure 1.

As shown in Figure 4, Tank Creek is the only portion of the watershed that provides inflow to the wetlands being assessed.

(You may want to ask DEQ where there are any proposed changes.) This information is included in Clean Water Act section 303(d) reporting.

- a. Streams or portions of streams within the study area are listed as *water quality limited*.
 - b. No streams or portions of streams within the study area are listed as *water quality limited*.
8. Consult the most recent *Oregon Statewide Assessment of Nonpoint Sources of Water Pollution* to determine the water quality condition of stream reaches in the watershed upstream from the assessment area. (If both "b" and "c" apply, choose "c".)
- a. All upstream reaches are listed as *no problem (or no data available)*.
 - b. One or more upstream reaches are listed in *moderate* water quality condition.
 - c. One or more upstream reaches are listed in *severe* water quality condition.

Biological Characteristics of the Watershed

9. Fisheries: Select all that are appropriate and list type if known. (Contact local Oregon Department of Fish and Wildlife office for this information.)
- a. Cold water.
 - b. Warm water.
 - c. Anadromous.
 - d. Wild population.
 - e. Introduced or hatchery populations.
 - f. None.
 - g. Other (list).
10. Are known sensitive, threatened or endangered fish species present in the watershed? If so, list which species.
- a. Yes.
 - b. No.
 - c. Unknown.
11. Wildlife species: Select all that are appropriate and list species if known. (Contact local Oregon Department of Fish and Wildlife office for this information.)
- a. Migratory birds.
 - b. Big game.
 - c. Nesting birds.

Watershed Notes

Cutthroat Trout are listed on Streamnet.

12. Are known sensitive, threatened or endangered plant species or wildlife species other than fish present in the watershed? If so, list which species. (Contact local Oregon Department of Fish and Wildlife office for this information.)

- a. Yes.
- b. No.
- c. Unknown.

13. Does the watershed provide a natural corridor for fish or wildlife movement? (Observe from aerial photographs.) **List whether for fish, wildlife or both.** Consider fences, dams and other barriers to travel. Aerial photographs of the watershed area are the best source of information. Fragmented systems have barriers to movement or a section where the natural area is broken by a developed area. A corridor is a landscape feature that enables fish or wildlife species to travel between broad geographical areas. (See Figure 1.)

- a. There are contiguous natural areas that allow species movement, and if barriers exist, they do not stop animal or fish movement.
- b. **The natural areas are fragmented, but species movement is still possible.**
- c. The habitat system is fragmented, and there are barriers to species movement.

14. What are the landscape features at both ends of the movement corridor? (These may lie outside the assessment area.) From an aerial photo, observation or local knowledge, determine whether there are large natural areas at either end of the movement corridor. The natural area does not have to be a wetland.

- a. **Large natural habitat areas at both ends.**
- b. One end has a natural habitat area, and the other end is developed.
- c. Both ends are developed.

Watershed Notes

Columbian White-Tailed Deer, Streaked Horned Lark, Nelson's Checker-Mallow, Kincaid's Lupine are listed in the ORBIC Report.

Individual Wetland Sites

Question	Study Area
<i>Wetland Structure and Relation to Surrounding Landscape</i>	
<p>15. What percentage of the area within 500 feet of the wetland's edge is dedicated to the land uses listed below? (From overlay 2 or in the field.) It is best to determine the land uses from a recent aerial photo. If an aerial photo is not available, measure 500 feet in the field to get an idea of distance to evaluate. Use the following ranges for your answers for each land-use category:</p> <ol style="list-style-type: none"> a. Less than 20%. b. Between 20% and 50%. c. Greater than 50%. <ol style="list-style-type: none"> i. Open Space (includes natural areas, parks and developed recreation areas, but not lands zoned for Exclusive Forest Use). ii. Agriculture (pasture, cropped lands, orchards, range land). iii. Exclusive Forest Use lands. iv. Developed uses (residential, commercial, industrial). v. Other (list). 	<ol style="list-style-type: none"> i. Greater than 50% Open Space. ii. Between 20%-50% Agriculture. iii. Less than 20% EFU. iv. Less than 20% Developed.
<p>16. What is the dominant existing land use withing 500 feet of the wetland on the downstream or down-slope edge of the wetland? Use the same land-use categories as question 15.</p>	<ol style="list-style-type: none"> i. Greater than 50% Open Space. ii. Less than 20% Agriculture. iii. Less than 20% EFU. iv. Less than 20% Developed.
<p>17. What is the wetland's area in acres? (Measure the entire area of contiguous wetland, not just the portion within the assessment area. Use the dimensions of the wetland as outlined on the base map.)</p> <ol style="list-style-type: none"> a. Greater than 5 acres. b. Between 0.5 and 5 acres. c. Less than 0.5 acres. 	<p>Answer A, Greater than 5 acres.</p>
<p>18. How is the wetland connected to another body of water, such as a stream, lake or pond? (See Figure 2.)</p> <ol style="list-style-type: none"> a. The wetland is connected by a surface water to another body of water. This may be by a culvert, irrigation ditch, intermittent stream or perennial stream. b. No surface-water connection exists to another body of water, but other bodies of water lie within 1 mile of the wetland. c. No surface-water connection exists to another body of water, and no other bodies of water lie within 1 mile of the wetland. 	<p>Answer A, Tank Creek is shown to drain into the watershed on LiDAR.</p>

<p>19. Is all or part of the wetland located within the 100-year floodplain (use floodplain maps to determine) or within an enclosed basin? An enclosed basin has no inlet or outlet.</p> <ul style="list-style-type: none"> a. Yes b. No 	<p>Answer A, The wetland is protected from flooding by the levee. However, the wetland drains to McLean Slough via drainage ditches, and McLean Slough is pumped over the levee by the drainage district. (The drainage district is technically an enclosed basin.)</p>
<p>20. What percentage of the area within 500 feet of the wetland's edge is zoned for each of the following land uses below? Use the following ranges for your answers:</p> <ul style="list-style-type: none"> a. Less than 20% b. Between 20% and 50% c. Greater than 50% <ul style="list-style-type: none"> i. Open Space (includes natural areas, parks and developed recreation areas, but not lands zoned for Exclusive Forest Use). ii. Agriculture (pasture, cropped lands, orchards, range land). iii. Exclusive Forest Use lands. iv. Developed uses (residential, commercial, industrial). v. Other (list). 	<ul style="list-style-type: none"> i. Greater than 50% Open Space. ii. Between 20%-50% Agriculture. iii. Less than 20% EFU. iv. Less than 20% Developed.
<p><i>Wetland Habitat</i></p>	
<p>21. What percentage of the wetland's area is covered by the following Cowardin wetland classes? (Cowardin wetland classes refer to a classification of wetland type by vegetation cover. See Appendix D.) Only list those that compose 10% or more of the overall wetland. The percentages can be estimated in the field or from aerial photographs. Use the following categories for your4 answers:</p> <ul style="list-style-type: none"> a. Between 70% and 100% b. 50% or more, but less than 70% c. 20% or more, but less than 50% d. 10% or more but less than 20% <ul style="list-style-type: none"> i. Open water (deep water habitat, greater than or equal to 6.6 feet or 2 meters). ii. Emergent (includes floating aquatics—herbaceous plants that can tolerate flooding and living in wet soils). iii. Scrub-shrub (woody vegetation iv. under 20 feet tall). v. Forested (woody vegetation 20 feet or taller). 	<ul style="list-style-type: none"> i. Less than 10% Open Water. ii. 50%-70% Emergent. iii. 10%-20% Scrub-shrub. iv. 20%-50% Forested.
<p>22. For urban areas, how many wetland plant species are present? (You need not list the species name.)</p> <ul style="list-style-type: none"> a. More than 5 plant species. 	

<p>b. Between 2 and 5 plant species. c. 1 plant species (monotypic).</p>	
<p>23. What is the dominant wetland vegetation cover type? a. Woody vegetation (forested and scrub-shrub). b. Emergent vegetation and ponding, or open water only. c. Emergent vegetation only or wet meadow.</p>	<p>Answer C, Emergent vegetation only, or wet meadow.</p>
<p>24. Refer to the diagram in Figure 3 and select the one that most closely resembles the interspersion of Cowardin wetland classes and, if present, upland inclusions. (An upland inclusion is an island or an upland area surrounded on three sides by wetland.) a. High b. Moderate c. Low</p>	<p>Answer C, Low interspersion. There are large blocks of PEM, and large blocks of PFO, however there are not mosaics of patchy complex habitat with lots of “edges”.</p>
<p>25. For rural areas: What percentage of the wetland’s edge is bordered by upland wildlife habitat that is at least 150 feet wide? a. Greater than 40%. b. Between 10% and 40%. c. Less than 10%.</p>	<p>Answer B, Between 10% and 40%.</p>
<p>26. For urban areas: What percentage of the wetland’s edge is bordered by a vegetative buffer at least 25 feet wide? A vegetative buffer consists of trees, bushes or vegetation that is not regularly mowed or farmed. (See Figure 5.) a. Greater than 40%. b. Between 10% and 40%. c. Less than 10%.</p>	
<p>27. How is the wetland connected to other wetlands? (Look at an aerial photo or map to determine this.) a. Connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, culvert, canal or lake. b. Not connected by surface-waters, but other unconnected wetlands lie within a 3-mile radius. c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within a 3-mile radius.</p>	<p>Answer B, the wetland is not connected to other wetlands by surface water, but other unconnected wetlands lie within a 3-mile radius.</p>
<p>28. Estimate the area of unvegetated, open water within the wetland. a. More than 3 acres. b. Greater than 1 acre, up to 3 acres. c. Between 0.5 acre and 1 acre. d. Less than 0.5 acre.</p>	<p>Answer C, Between 0.5 and 1 acres. (Open water is deeper than 6.5 feet.)</p>

Fisheries Habitat	
29. Are fish present in a stream, lake or pond connected to the wetland? a. Salmon, trout or sensitive species are present at some time during the year. b. Species not covered in "a" are present at some during the year. c. No species are present at any time of the year.	Answer A, Cutthroat Trout are present. (StreamNet.)
Streams Connected to the Wetland Complete this section only if the wetland being assessed as an unimpeded surface water connection to a stream.	
30. What is the physical character of the stream channel? To observe stream channel modifications, look for build rock banks, cement sides, straightened areas or other human-created features. a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel. b. Only portions of the stream are modified. c. The stream is extensively modified or confined in a non-vegetated channel or pipe.	Answer C, the stream channels are extensively modified by the drainage district.
31. What percentage of the stream is shaded by streamside riparian vegetation? a. Greater than 75%. b. Between 50 and 75%. c. 25% or more, but less than 50%. d. Less than 25%.	Answer D, Less than 25%.
32. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders? a. Greater than 25%. b. Between 10% and 25%. c. Less than 10%.	Answer B, between 10% and 25%.
Lakes or Ponds (entire lake or pond and wetland complex) Complete this section only if the wetland being assessed has an unimpeded surface water connection to a lake or pond.	
33. Does the lake or pond contain areas of deep and shallow water? ("Deep" is defined as more than 6.5 feet deep.) a. Yes. b. Cannot be determined. c. No.	NA
34. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation? a. 60% or more. b. 20% or more. c. Less than 20%.	NA
35. What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders?	NA

<ul style="list-style-type: none"> a. Greater than 25%. b. Between 10 and 25%. c. Less than 10%. 	
<p>36. What is the wetland's primary source of water? (Determine in the field or in the office. This may be difficult to determine. If a surface water connection exists—stream, lake, ditch—use it as the primary source. If no surface water connection is present, talk to local natural resource people for hints.)</p> <ul style="list-style-type: none"> a. Surface flow, including streams and ditches. b. Precipitation or sheet flow. c. Groundwater, including springs or seeps. 	<p>Answer B or C, it could be precipitation, or it could be ground water. Difficult to determine, so both possibilities will be considered.</p>
<p>37. Is there evidence of flooding or ponding during a portion of the growing season? Look for evidence of water fluctuation such as sediment stains on trees, drift lines, surface scour or sediment deposits. Also look at the location of the wetland. Is it a distinct topographic depression or adjacent to a stream that is known to flood or fluctuate because of storm pulses?</p> <ul style="list-style-type: none"> a. Yes (describe). b. Unable to determine or not applicable. c. No. 	<p>Answer C, the levee does not allow water from the Columbia River to flood the wetland.</p>
<p>38. Is water flow out of the wetland restricted (e.g., beaver dam, concrete structure, undersized culvert)?</p> <ul style="list-style-type: none"> a. Yes, the outlet is restricted, or the wetland has no outlet. b. Minor restrictions slow down the water (e.g., undersized culvert). c. No, the outlet has unrestricted flow. 	<p>Answer B, the drainage ditches in the wetland drain to McLean Slough which is pumped out over the levee by the drainage district.</p>
<p>39. If the primary source of water is surface flow, is the water flow into the wetland restricted?</p> <ul style="list-style-type: none"> a. Flow is not restricted, or if blocked the obstruction can be removed easily. b. Permanent blockage to the flow exists but may be breached or a new flow channel created (engineering or earth moving solution). c. Flow is restricted and cannot be restored. 	<p>NA</p>
<p>40. Has the stream flow or stream bank been modified by human activities less than 1 mile above the wetland? Modifications include dams, channelizations and levees, and confinement of the stream in a pipe.</p> <ul style="list-style-type: none"> a. Yes. b. No. 	<p>Answer A.</p>
<p>Public Access to Wetland Site</p>	
<p>41. Is the wetland site open to the public for direct access or observation?</p> <ul style="list-style-type: none"> a. Yes, the wetland is open to the public. b. Yes, but the wetland access is allowed only by permission of the landowner or managing entity. 	<p>Answer C, the Port industrial area has restricted access, the non-Port portion is privately-owned.</p>

<p>c. No, access is not allowed.</p>	
<p>42. Are there visible hazards to the public at the wetland site? (Examples: busy road adjacent to the site, and no buffer or sidewalk exists; steep embankment; and contaminated water.)</p> <p>a. No.</p> <p>b. One or two visible safety hazards exist (describe).</p> <p>c. More than two visible safety hazards exist (describe).</p>	<p>Answer C, There is shipping and rail at the Port, farming and ranching on agricultural land, and no sidewalks.</p>
<p>43. Are there other natural landscape features such as a stream, lake, pond, forest or agricultural land contiguous or adjacent to the wetland?</p> <p>a. Yes. (List type and extent.)</p> <p>b. No.</p>	<p>Answer A, open space and agricultural land are both contiguous and adjacent to the wetland.</p>
<p>44. Is there existing physical public access to features listed in Question 43? If not, can such access be created easily, or can other habitats be observed from the site? For a stream, pond or lake, access may require dry ground to the water's edge. Stream access could also be at a road crossing but consider the safety at such locations.</p> <p>a. Public access to other habitats exists or can be created easily.</p> <p>b. Public access doesn't exist and can't be created easily, but observation of other features can be made from the site.</p> <p>c. Public access doesn't exist and can't be created easily. In addition, observation of other features can't be made from the site.</p>	<p>Answer C, no access.</p>
<p>45. Does it appear that access to a viewing spot or wetland edge is available for individuals with limited mobility? (To see whether the site meets ADA requirements, a more thorough examination should be done.)</p> <p>a. Yes.</p> <p>b. No. (List physical barriers.)</p>	<p>Answer B, no access.</p>
<p>46. Is there a public access point within 250 feet of the wetland's edge? Access points include parking lots, transit stops, bike lanes, trails and water courses. Maintained means that the area is designated as a car or transit area by the managing entity. Unmaintained would be a road pull-off or other area that people use but is not designated for such use. Describe the type of access.</p> <p>a. Yes, a maintained access point exists (describe).</p> <p>b. Yes, an unmaintained access point exists (describe).</p> <p>c. No access point exists, or the access point is hazardous.</p>	<p>Answer C, no access.</p>
<p>47. Is the wetland accessible by boat?</p> <p>a. Boat launching areas or access points exist on site or withing ½ mile on a connected lake, river, bay or other body of water.</p> <p>b. Potential to develop boat launching areas or access points exists, or such features are more than ½ mile but less than 1 mile from the wetland.</p>	<p>Answer C, there is no public access by boat.</p>

<p>c. No boat launching areas or access points exist within 1 mile of the wetland, and potential to develop launching areas or access points is limited.</p>	
<p>Recreation</p>	
<p>48. Are there trails, viewing areas or other structures that guide user movement to a particular area or areas in or around the wetland?</p> <p>a. Yes, developed or maintained trails or viewing areas exist.</p> <p>b. Yes, undeveloped trails or viewing areas exist that do not disrupt wildlife or plant habitat.</p> <p>c. No trails or viewing areas exist, or those that do disrupt wildlife or plant habitat.</p>	<p>Answer C, no trails or viewing areas exist, there is no public access.</p>
<p>49. Is fishing allowed at the wetland or connected water body? (Contact local Oregon Department of Fish and Wildlife office.) Answer “not applicable” if Question 18 was answered “b” or “c”, unless Question 21 indicates that 10% or more of the wetland’s area is covered by open water.</p> <p>a. Yes (either all or part of the year).</p> <p>b. No.</p> <p>c. Not applicable.</p>	<p>Answer B.</p>
<p>50. Is hunting allowed at the wetland? (If the wetland is within the city limits, hunting is not allowed. Otherwise, contact the local Oregon Department of Fish and Wildlife office for this information.)</p> <p>a. Yes (either all or part of the year).</p> <p>b. No.</p>	<p>Answer B.</p>
<p>Aesthetics</p>	
<p>51. For rural areas, what is the extent of visual contrast with the surrounding landscape? (See Figure 6.)</p> <p>a. Significant contrast with surrounding landscape.</p> <p>b. Limited contrast with surrounding landscape.</p> <p>c. Little or no contrast with surrounding landscape.</p>	<p>Answer C.</p>
<p>52. For urban areas, what is the visual character of the surrounding area? (See Figure 7.)</p> <p>a. Open space or naturally landscaped areas.</p> <p>b. Areas landscaped or manipulated by people.</p> <p>c. Developed with no landscaping.</p>	
<p>53. Are there visual detractors at the wetland site such as abandoned cars, litter, shopping carts or other objects that distract the viewer from the wetland?</p> <p>a. Yes.</p> <p>b. No.</p>	<p>Answer A near the Port industrial area, answer B near the agricultural fields.</p>
<p>54. If the wetland contains visual detractors, as indicated in Question 53, can they be removed easily?</p> <p>a. Yes.</p>	<p>Answer B, the detractors are permanent.</p>

<p>b. No.</p>	
<p>55. What odors are present at the primary viewing location(s)?</p> <ul style="list-style-type: none"> a. Natural, pleasant odors only. b. Unpleasant odors such as automobile exhaust or stench from a sewage treatment plant are present at certain times. c. Unpleasant odors are distinct and continuously present. 	<p>Answer A.</p>
<p>56. What noises are audible at the primary viewing location(s)?</p> <ul style="list-style-type: none"> a. Bird and wildlife noises and other naturally occurring sounds. b. Some traffic and other similar background sounds are audible in addition to naturally occurring sounds. c. Continuous traffic or other intrusive noise is audible, but no naturally occurring sounds are. 	<p>Answer B. Traffic on highway 30 can be heard, and occasional industrial sounds near the Port industrial area.</p>
<p>57. How much of the wetland is visible from the viewing area(s)? Describe the view.</p> <ul style="list-style-type: none"> a. Greater than 50%. b. Between 25% and 50%. c. Less than 25%. 	<p>Answer C, from unmaintained unpaved roadsides. There is no viewing area.</p>
<p>58. How many Cowardin classes are visible from the primary viewing area(s)? (See Question 21 for a list of Cowardin classes to use.)</p> <ul style="list-style-type: none"> a. More than two. b. Two. c. One. 	<p>Answer C, from unmaintained unpaved roadsides. There is no primary viewing area.</p>

OFWAM Answer Sheets

Wetland Identifiers

Wildlife Habitat		
Question	Answer	Rationale
1	A	PEM, PSS, PFO
2	C	PEM Dominant.
3	C	Large blocks of PEM, large blocks of PFO, however, not patchy and complex with a lot of "edges" for variety of habitat.
4	B	Between 1 and 3 acres.
5	A	The watershed includes Tank Creek, (LiDAR).
6	B	Levee, but other wetlands are less than 3 miles away.
7	A	Not water quality limited.
8	A	Greater than 50% Open Space.
9	B	Between 10% and 40%.
Assessment Descriptor	The wetland provides SOME habitat for wildlife species. (SOME because there is more than one "C".)	
Fish Habitat		
<i>Streams & Rivers</i>		
Question	Answer	Rationale
1	C	Less than 50%.
2	C	Extensively modified.
3	B	Between 10% and 25%.
4	A	Not water quality limited.
5	A	Open space.
6	A	Trout.
<i>Lakes & Ponds</i>		
1	C	No lake or pond.
2	C	Less than 10%, because there is no lake or pond.
3	C	Less than 20%, because there is no lake or pond.
4	A	Not water quality limited.
5	A	Open space.
6	A	Trout.
Assessment Descriptor	Fish habitat function is DEGRADED . (There is more than one "C".)	
Water Quality		
Question	Answer	Rationale
1	B or C	Precipitation or Groundwater.
2	C	Isolated by the levee.
3	A	90% cover by vegetation.
4	A	More than 5 acres.

5	C	Open space.
6	C	Not water quality limited.
Assessment Descriptor	Water quality function is DEGRADED or LOST. (#2 is not "A", and possibly four "C"s.)	
Hydrologic Control		
Question	Answer	Rationale
1	A	McLean Slough is pumped out by the drainage district (enclosed basin). However, the wetland is isolated by the levee and NOT in the floodplain.
2	C	Isolated by the levee.
3	A	More than 5 acres.
4	B	McLean Slough is pumped out by the drainage district.
5	C	PEM
6	C	Open space.
7	C	Forested or natural area.
Assessment Descriptor	The wetland's hydrologic control function is LOST. (Four "C"s.)	
Sensitivity to Future Impacts		
Question	Answer	Rationale
1	A	Modified and isolated.
2	A	Drainage district and isolated.
3	C	Not water quality limited.
4	C	Open space.
5	C	Open space.
6	B	PEM
Assessment Descriptor	The wetland is POTENTIALLY sensitive to future impacts. (Not enough "A"s to be highly sensitive.)	
Enhancement Potential		
Question	Answer	Rationale
1	B	Some, Degraded, Degraded, Lost.
2	B or C	Precipitation or Groundwater.
3	C	NA
4	A	Greater than 5 acres.
5	B	Between 10% and 40%
6	B	Potentially sensitive.
Assessment Descriptor	The wetland has MODERATE or LITTLE potential for enhancement. (#1 is B, and maybe two "C"s.)	
Education		
Question	Answer	Rationale
1	C	The Port is restricted access, and all other property is privately-owned.

2	C	The Port has shipping and rail, farming and ranching on agricultural land, and no sidewalks.
3	B	Wildlife habitat is SOME.
4	C	No access.
5	C	No access.
6	B	No access.
Assessment Descriptor	The wetland is NOT APPROPRIATE for educational use. (#1 or #2 is "C".)	
Recreation		
Question	Answer	Rationale
1	C	No access.
2	C	There is no public or river access to the wetland.
3	C	No trails or viewing areas exist, there is no public access.
4	B	Wildlife habitat is SOME.
5	B	NA
6	B	No access.
Assessment Descriptor	The wetland is NOT APPROPRIATE for recreation. (#1 and #2 are "C".)	
Aesthetic Quality		
Question	Answer	Rationale
1	C	Unmaintained roadsides give a view of one Cowardin class.
2	C	Less than 25% of the wetland is visible from unmaintained roadsides.
3	A & C	Answer A near the agricultural fields, answer C near the Port.
4	C	Little to no contrast.
5	A	Natural odors.
6	B	Mostly natural sounds, some industrial.
Assessment Descriptor	The wetland is NOT aesthetically pleasing. (Two or more "C"s.)	

Function & Condition Summary Sheet for OFWAM

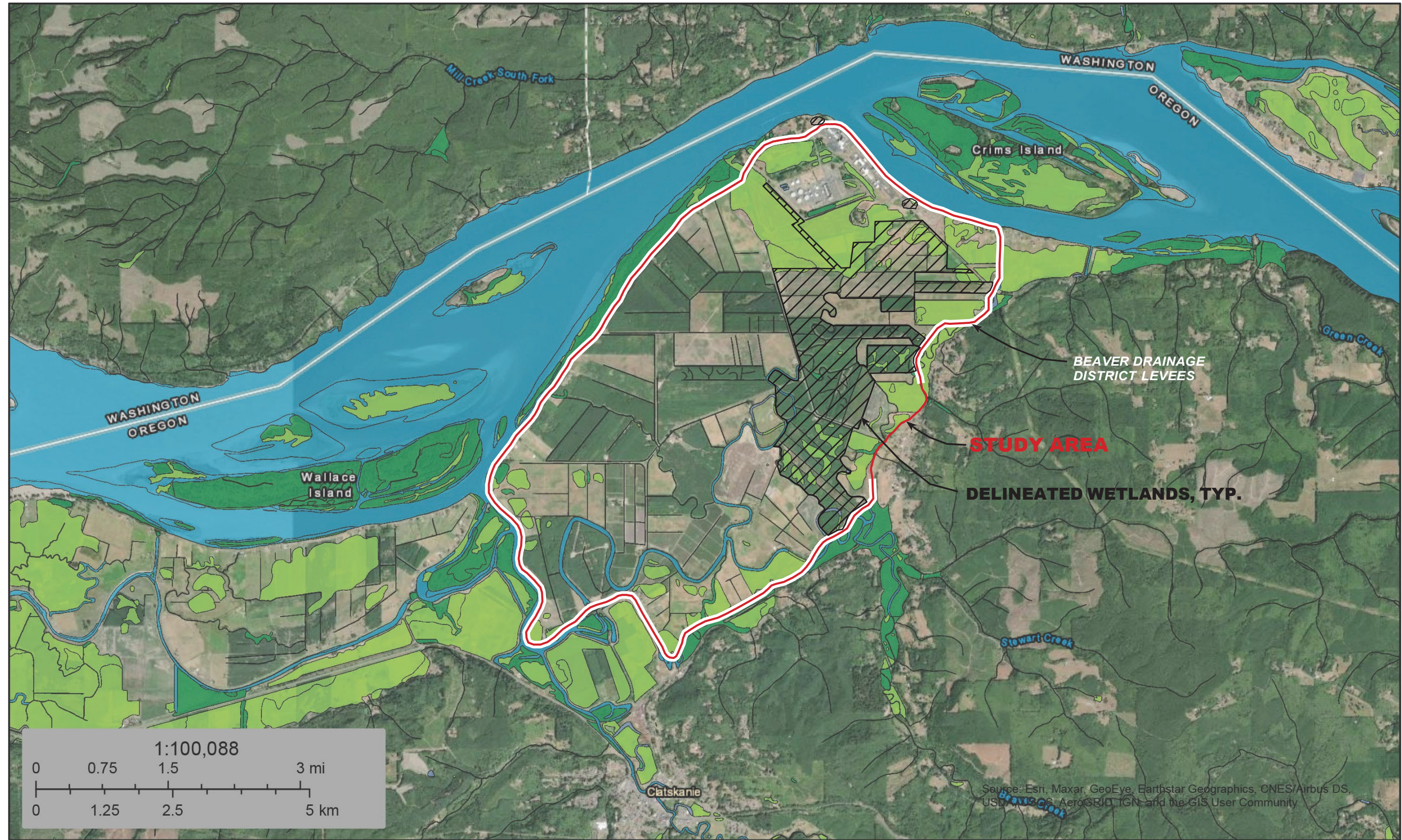
Wetland Identification: The wetlands behind the levee (within the Beaver Drainage District) identified by the National Wetland Inventory mapper and delineations; on land that is zoned Resource Industrial Planned Development (RIPD) at Port Westward, and some zoned Primary Agriculture adjacent to the Port; were assessed with OFWAM.

Function	Assessment Descriptor	Rationale
Wildlife Habitat	SOME Habitat	There is some wildlife habitat based on the fact that the wetland is mostly PEM, with large blocks of PFO, and some PSS. The wetland is larger than 5 acres, and adjacent to open space. There are also other wetlands within a 3-mile radius, and the Columbia River is less than 1 mile away.
Fish Habitat	DEGRADED	The function is degraded because the streams have been extensively modified. There is no connectivity with the Columbia River due to the levees.
Water Quality	DEGRADED or LOST	The function for water quality is degraded or lost because the main source of water is either precipitation or groundwater and the wetland is isolated by the levee so there is no opportunity to filter incoming water that is low quality. The wetland is larger than 5 acres but, adjacent to mostly open space.
Hydrologic Control	LOST	The function for hydrologic control is lost because even though McLean Slough has to be pumped over the levee by the drainage district, the wetland is behind the levee and not in the floodplain. The wetland is larger than 5 acres but, the wetland vegetation is mostly emergent, and the wetland is adjacent to mostly areas of open space.
Sensitivity to Future Impacts	POTENTIALLY Sensitive	The wetland is potentially sensitive because water is actively removed by drainage ditches, and the wetland is isolated by the levee.
Enhancement Potential	MODERATE or LITTLE Enhancement Potential	There is moderate to little enhancement potential because the four ecological functions are impacted or lost, and the wetland is isolated by the levee.
Education	NOT Appropriate	This wetland is not appropriate for education purposes because the wetland is in an area that is zoned Resource Industrial Planned Development, and the Port restricts access. There are not maintained public access points, nor much visibility.
Recreation	NOT Appropriate	This wetland is not appropriate for recreation because there is no boat access, no fishing, and no hunting.
Aesthetic Quality	NOT Pleasing	The aesthetic quality was rated not pleasing because there is only one main vegetation type per view space (large blocks of PEM, and large blocks of PFO), and

		not much of the wetland is visible from the roadside. Visual detractors of the industrial sites at the Port are permanent.
Narrative description of overall wetland functions and conditions.		
<p>The OFWAM assessment found that there is some habitat for wildlife, and that fish habitat is degraded. The water quality function is degraded or lost, and the hydrologic control function is lost because the wetland is isolated behind the levee, and adjacent to open space. There is little opportunity to filter water and improve water quality or hold flood waters and protect developed areas.</p> <p>None of the four ecological functions, wildlife habitat, fish habitat, water quality, or hydrologic control scored high enough to be considered significant. There are no rare wetland plant communities, there are no critical habitats present, and the wetland is isolated by the levee and heavily impacted by the drainage district.</p> <p>The wetlands located behind the levee (within the drainage district) in the Resource Industrial Planned Development area at Port Westward and the wetlands that were converted for farming and are zoned Primary Agriculture are NOT significant under OFWAM.</p>		

Watershed Summary Sheet for OFWAM

Characteristic	Rationale
Physical Characteristics of the Watershed	The Lower Beaver Creek-Frontal Columbia River HUC 10 (1708000302) is mostly flat, and was historic wetland converted to agriculture in the early 1900s. There is a levee separating the old floodplain from the Columbia River, and there are drainage ditches throughout managed by the Beaver Drainage Improvement Company. The watershed encompasses 15.32 square miles, or 6,525 acres. The annual precipitation is 56.41 inches, and the climate is modified marine with cool, rainy winters and mild summers.
Land Uses within Watershed	The majority of the land use is Primary Agriculture (PA-80), followed by Resource Industrial Planned Development (RIPD). Approximately 2500 acres are planted in hybrid poplar tree farms, 1100 acres in row crops, and 2200 acres are used as pasture or open space.
Water Quality	The water quality of Beaver Creek has not been assessed in recent years, and the Columbia River is <i>water quality limited</i> .
Biological Characteristics of the Watershed	There are numerous wetlands mapped on the National Wetland Inventory (NWI) that suggest where wetlands are likely to be found, and the vegetation of those wetlands range from forested (PFO), to scrub-shrub (PSS), to emergent/wet meadow (PEM). There are some native wetland plant species, as well as non-native invasive species. However, many of the historic wetlands were converted to agriculture and are still used as such.
Narrative Summary of Watershed Description	
The Lower Beaver Creek-Frontal Columbia River watershed is the historic flood plain off the Columbia River before the levee was put in to convert the land to agriculture. As the annual precipitation is high, most of the lands behind the levee in the drainage district still maintain wetland characteristics, though many are degraded. The current condition of the environment within watersheds reflects legacy influences from environmental changes due to widespread human disturbance including the construction of the levee. Anthropogenic alterations associated with current and historical land uses negatively impact ecological processes critical to water quality and the availability and quality of habitat that sustains fish and wildlife populations.	



Wetlands

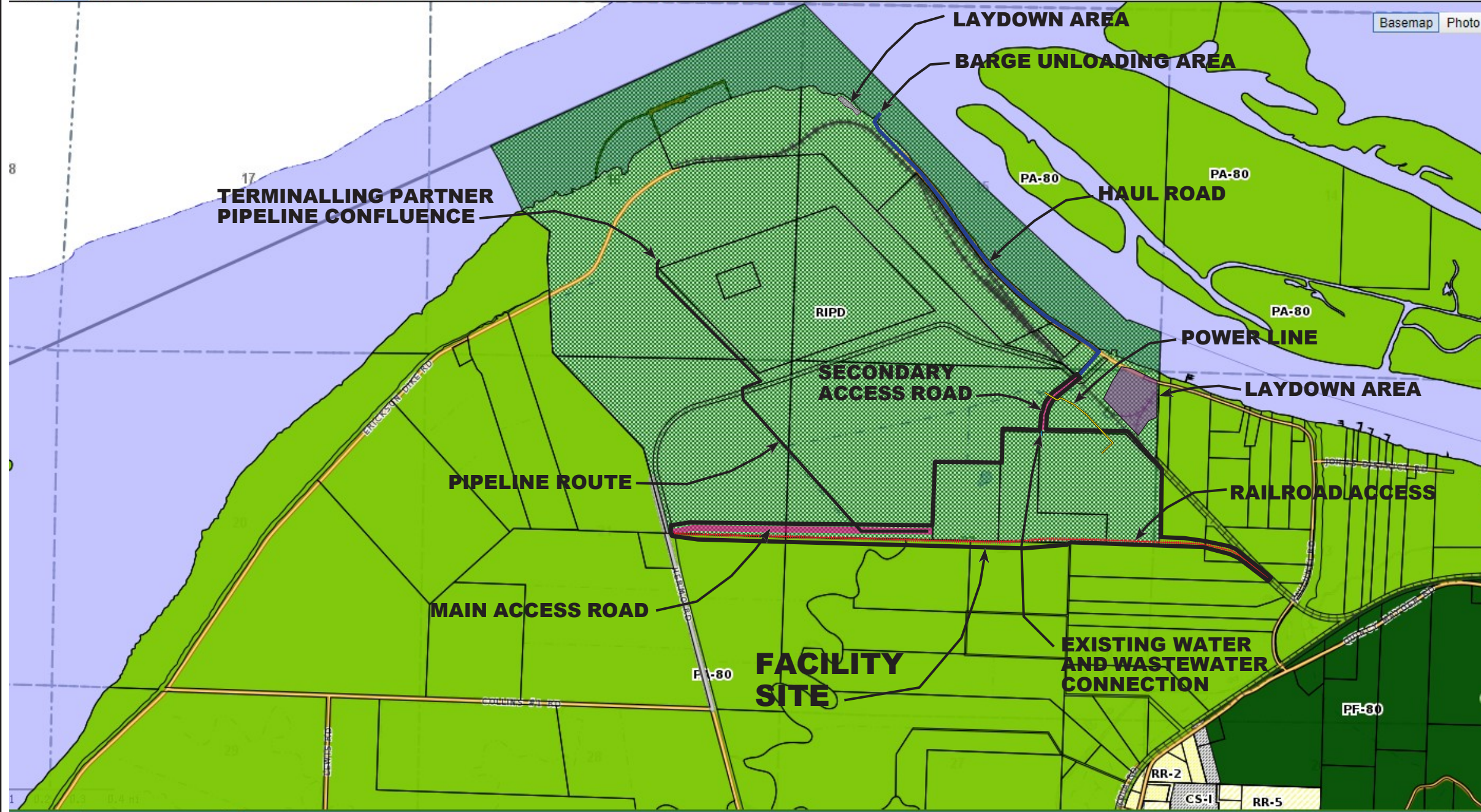
- | | | |
|--------------------------------|-----------------------------------|----------|
| Estuarine and Marine Deepwater | Freshwater Emergent Wetland | Lake |
| Estuarine and Marine Wetland | Freshwater Forested/Shrub Wetland | Other |
| | Freshwater Pond | Riverine |

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



NEXT RENEWABLE FUELS OREGON
 PORT WESTWARD, OREGON
 OFWAM ASSESSMENT

OFWAM WETLAND ASSESSMENT MAP



Zoom To: [dropdown]

Catalog Search [x]

Sections

- Points of Interest
- Parks
- Districts and Boundaries
- Transportation
- Natural Features
- Land Use Planning
 - 2000 Population
 - 2010 Population
 - Urban Growth Boundary (UGB)
 - Annexations
 - Zoning - Columbia County
 - Airport Industrial (AI)
 - Community Service-Inst. (CS-I)
 - Community Service-Rec. (CS-R)
 - Community Service-Utly. (CS-U)
 - Existing Commercial (EC)
 - Forest Agriculture (FA-80)
 - Primary Agriculture (PA-80)
 - Primary Forest (PF-80)
 - Resource Ind.-Planned Devl. (RIPD)
 - Rural Residential-5 ac (RR-5)
 - Rural Residential-2 ac (RR-2)
 - Single Family Res. (R-10)
 - Multi-Family Res. (MFR)
 - Mobile Home Res. (MHR)
 - Rural Community-Mixed Use (RC)
 - Commercial-Marine (C-2)
 - Commercial-General (C-3)
 - Commercial-Neighborhood (C-4)
 - Commercial-Highway (C-5)
 - Light Manufacturing (M-2)
 - Heavy Manufacturing (M-1)
 - Surface Mining (SM)
 - Zoning - Clatskanie
 - Zoning - Columbia City
 - Zoning - Prescott
 - Zoning - Rainier
 - Zoning - Scappoose
 - Zoning - St Helens
 - Zoning - Vernonia
- Aerial Photos



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

MAP OBTAINED FROM: <https://www.columbiacountyor.gov/gis-mapping>



NEXT RENEWABLE FUELS OREGON
PORT WESTWARD, OREGON
OFWAM ASSESSMENT
ZONING MAP

FIGURE
2

