April 1, 2014

NOTE FOR PRINTING: For best results print pdf pages 1-14 double sided; pages 15-25 single sided color; pages 26-28 single sided color on 11"x17" paper; pages 29-116 double sided; and pages 117-138 single sided color. Page numbers refer to pdf page numbers not those that are displayed in the Table of Contents.

WETLAND DELINEATION REPORT:

East Sand Island
Clatsop County, Oregon

Prepared for:

US Army Corps of Engineers ®
Portland District
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Portland, Oregon 97204

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TABLE OF CONTENTS

TABLES

SUPPORTING DATA

A. LANDSCAPE SETTING AND LAND USE

A.1 Detailed Description of Study Area

The study area for this wetland delineation is East Sand Island (ESI), an approximate 60 acre undeveloped island in the Columbia River; Clatsop County, Oregon (Figure 1). The study area is comprised of the eastern portion of tax lot 300 on tax map T9N R11W (Figure 2); no section number is assigned to this portion of the map. A small area on the eastern tip of the island is in Township 9N Range 10W Section 18, in Pacific County, Washington. ESI is near River Mile 5 of the Columbia. The northern side of the island faces Baker Bay, Washington. The island is approximately one mile west of the town of Chinook, Washington, and 8 miles northwest of the city of Astoria, Oregon.

A.2 Landscape Setting

ESI is a highly modified natural island. It is long and narrow; over 1.4 miles long from east to west, and approximately 900 feet wide at its widest. Most of the island is low elevation. During low-tide events, sand is exposed down to elevations near sea level. The highest elevation on the island is approximately 26 feet above sea level (NAVD88). Most of the island is composed of sandy soil, including extensive dredge material, but has areas with finer textured soils such as silt loam, and silty clay loam. Some areas, primarily along the southern shoreline, have recently eroded and show signs of active erosion. This erosion is caused by wind, wave, and debris action. There is a stone jetty at the west end of ESI and areas armored with large-angular rock in the central portion of the island.

A.3 Land Use

No roads are currently located within the study area but some structures such as fencing, above-ground tunnels for bird hazing, and sheds are present throughout the island. Most of these features are associated with bird control and research. ESI provides habitat for many species of birds and is the nesting site of the largest Caspian tern colony in the world (Audubon Society 2014). It is also a breeding site for double-crested and Brandt's cormorants and has the largest breeding colony of double-crested cormorants in western North America, and possibly the entire continent (Roby et al. 2013). Various other water birds use the island for nesting and/or roosting including two species of gulls and brown pelicans. ESI is designated as an Important Bird Area by the American Bird Conservancy and the National Audubon Society, and is included in the Western Hemisphere Shorebird Reserve Network Site (USACE 2014). The U.S. Army Corps of Engineers (USACE) is the federal agency that manages ESI. This wetland delineation was completed to assist the USACE with their research involving natural resources on the island.

B. SITE ALTERATIONS

B.1 Site History

The U.S. Army obtained the island in 1863 and it was used for military purposes until the mid 20th century. Historically, structures such as a railroad spur line, docks, barracks and other military buildings were present (Darby 2014). The island is near to Fort Canby and it has been used as an artillery range for the fort. In the early 1900s, seine-net fishing for salmon was common on the island.

The area now known as East Sand Island had once been a narrow peninsula connected to the main portion of Sand Island. In 1931, the USACE started building a dike to hold deposited dredge materials and stabilize Sand Island. By 1933, the dike extended along the southern shore of the eastern peninsula, and dike groins were being constructed that extended south. Before construction of the groins were completed, the dike was breached and the eastern peninsula was separated from the main portion of the island.

ESI was used as a containment site for dredge materials in the 1970s and 1980s. Over 650,000 cubic yards of dredge material from the nearby Chinook channel was placed on the island between the years of 1978 and 1982 (USACE 2012). ESI has not been used as a disposal site for dredge material since the 1980s. Areas of the island, such as the western end, were stabilized with large-angular rock to prevent erosion at that time.

B.2 Historic Aerial Photograph Review

A review of aerial photographs from Bing, Google Earth, and the USACE dating from 1931 through 2012 was completed for ESI and surrounding areas; selected aerial photos are included in Figures 5a-f. A photo from 1944 (Figure 5a) displays inundation into the eastern portion of ESI, a railroad line and various other infrastructure. The island was slightly different in shape at that time. A photo from 1958 (Figure 5b) displays the eastern portion of the island and inundation in an area that is currently un-vegetated sand and used as a nesting site for Caspian terns. In 1975 (Figure 5c), the island was more similar to its present day shape as a result of dredge material deposition and diking. In 1983 (Figure 5d), re-shaping of the island's topography can be observed; especially on the eastern end. An newly constructed berm can be viewed in this area; this berm currently exists and separates two delineated wetlands (Wetlands E and F). A photo from 2001 (Figure 5e) displays vegetation establishment on the island. This photo displays the extent of vegetation on the western side of the island prior to the colonization of double-crested cormorants. Currently this area is over-grazed, leaving it virtually un-vegetated. A photo from 2012 (Figure 5f) displays the current condition of the island.

C. PRECIPITATION DATA AND ANALYSIS

Tables 1 and 2 summarize data obtained from the National Weather Service (NWS) Astoria Weather Station and from the Natural Resource Conservation Service (NRCS) Astoria WETS Table. This delineation effort occurred in the early portion of the growing season; based on the WETS table for Astoria, a typical growing season starts on February 13th. Astoria is approximately 8 miles southeast of ESI.

Table 1 displays the daily recorded precipitation for February 2014, including the days of our field investigation (Feb. 19, 20, 25-28). As of February 28th, the total rainfall in Astoria was 7.40 inches; which is 0.47 inches below the average February rainfall of 7.87 inches, according to the Astoria WETS table (the NWS February average is 7.61).

Table 1: Daily Precipitation Data for February 1 through February 28, 2014

Date	Precipitation (Inches)	Date	Precipitation (Inches)
February 1	0.07	February 15	1.15
February 2	T	February 16	1.07
February 3	0.00	February 17	1.09
February 4	0.00	February 18	0.79
February 5	0.00	February 19	0.29
February 6	0.04	February 20	0.25
February 7	0.07	February 21	0.02
February 8	0.15	February 22	0.00
February 9	0.03	February 23	0.17
February 10	0.41	February 24	0.44
February 11	0.74	February 25	T
February 12	0.21	February 26	T
February 13	0.18	February 27	0.01
February 14	0.22	February 28	0.00

Notes: T=Trace.

Table 2 displays the NWS recorded precipitation data versus monthly averages from the WETS Table for the three previous months. The current Water Year started on October 1, 2013. November and December of 2013, and January 2014, all had less than average rainfall and November and December were below the "normal" 30-70 percentile range.

Table 2: Monthly Precipitation Data for Previous Three Months

Month	Total Precipitation (Inches)	Average Precipitation* (Inches)	Percent of Average Monthly Precipitation	Within "Normal" 30-70 percentile Range from WETS Table?	Water Year to Date (Inches)	Percent of Average Water Year to Date* at end of Month
Nov. 2013	5.11	10.50	49%	below normal range (7.45"-12.44")	7.17	45%
Dec. 2013	5.00	10.40	48%	below normal range (7.48"-12.44")	12.17	46%
Jan. 2014	6.36	9.62	66%	Within normal range (6.24"- 11.56")	18.52	51%

Note: *Monthly rainfall averages and the calculated "Average Water Year to Date" are from the Astoria WETS tables; the monthly averages vary slightly from those on the NWS website because the period of record is different.

D. METHODS

After reviewing background maps, aerial photographs, LiDAR (Light Detection and Ranging) generated topography maps, and soil descriptions, Green Banks LLC scientists C. Jonas Moiel and Jeff Handley conducted a wetland and waters delineation of ESI on February 19, 20, and 25 through 28, 2014. Additional data collection assistance was provided by Rian Dawson (Green Banks LLC) and Terry Frederick (Harris Environmental).

Wetland and water resources were delineated according to the protocols of the 1987 *U.S. Army Corps of Engineers Wetland Delineation Manual* and the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0)*.

The Natural Resource Conservation Service mapped Tropopsamments, 0-15% slopes (Map Unit 67), on the island (Figure 4); except for some areas which were mapped at Water. Tropopsamments are not listed as hydric soils according to the Clatsop County hydric soils list (2007), but may have inclusions of Aquents, which are hydric. According to the *Soil Survey of Clatsop County*, Tropopsamments are sands that are deep, excessively drained, and were formed in stratified dredge spoils. Portions of the eastern end of the island were mapped as Water (Map Unit W).

Wetland indicator statuses were obtained for observed plants from the *Regional Wetland Plant List for the Western Mountains, Valleys, and Coast* (USACE 2013).

Forty-three sample plots were established in wetlands and adjoining uplands to document the presence or absence of field indicators of wetland hydrology, soils and vegetation. The plot data were entered onto standardized wetland determination data sheets (Appendix B).

The USACE and the Oregon Department of State Lands (DSL) have different definitions of jurisdictional limit in tidal waters; however both are very similar, if not synonymous. The DSL has jurisdiction to the elevation of the "highest measured tide" (HMT) which is defined as the highest tidal elevation, not including storm surges. The HMT may be "*determined by a land survey referenced to the closest tidal benchmark based upon the most recent tidal epoch and reference to both the tidal datum (MLLW) and fixed geodetic datum (NAVD88)*", or by using field indicators such as the uppermost drift or wrack line, water-mark line, intertidal zone inhabited by aquatic invertebrates, and/or a marsh to upland plant community shift (DSL 2014; OAR 141-085-0515(2)).

The USACE's jurisdiction over tidal waters is outlined in Section 10 of the Rivers and Harbors Act, and Section 404 of the Clean Water Act. Section 10 defines jurisdiction to the "mean high water line" which is the average of all high tides. Section 404 defines jurisdiction to the "high tide line" (HTL) which is the maximum height of a rising tide, not including storm surges (33 CFR 328.3d). Since the HTL would be higher in elevation than the mean high water line, we delineated the HTL to determine the federal jurisdictional limit. The HTL can be delineated using either gauge data or field indicators similar to those used for delineating the HMT.

We used two methods to delineate the tidal waters boundary; the first method utilized river gauge data to estimate the HMT elevation, and the second method was based on field indicators. The two

closest river gauges to ESI are located near Fort Stevens (3.9 miles southeast) and Hammond (4.4 miles southeast), and are displayed on Figure 1. The HMT elevations calculated for the Fort Stevens and Hammond gauges were 12.06 feet (NAVD88; tidal epoch 1960-1978) and 11.34 feet (NAVD88; tidal epoch 1983-2001) respectively (DSL 2010). Since the HMT calculated for the Hammond gage is from the current tidal epoch, we used its calculated elevation of 11.34 feet (NAVD88) for ESI. One-foot contour maps were developed for the island using 2009 LiDAR data provided by the USACE. An 11.34 foot calculated HMT contour line was generated in GIS and overlaid on the maps (Figures 6a-c). This calculated HMT contour was also uploaded to a GPS unit for field verification (ground-truthing). Since the methods for determining the HMT and HTL based on gauge data are very similar, we assume that the calculated HMT would also be very similar to the calculated HTL.

A field indicator delineation of the tidal waters boundary was also completed. The field indicators described for determining the HMT in the DSL protocol (e.g. uppermost drift/wrack line, water-mark line, vegetation shifts) and for the HTL in the Clean Water Act Section 404 (e.g. line of oil/scum or debris, vegetation lines) are very similar, and would correspond to the same approximate elevation in field. Several indicators were observed on the island and used to delineate the tidal waters boundary.

As a means of ground-truthing the calculated HMT elevation and comparing the gauge based method versus the field indicator method, we established twelve "waters comparison transects" at representative locations on the island. At each transect location, we located the calculated HMT elevation using GPS and estimated the tidal waters boundary based on field indicators. Photographs of the waters comparison transects are included in Appendix D and their locations are displayed on Figures 6a-c.

The wetland and waters boundaries, data plots, photo point locations, and other site features were mapped using a survey-grade Trimble GeoXT GPS unit. Representative ground-level photographs of the features and habitat types (Appendix C) were taken in the field as well as general notes regarding plant community composition. A list of the plant species observed on ESI is included in Appendix E.

E. WETLANDS AND WATERWAYS

Green Banks delineated eight wetlands (Wetlands A-H) on East Sand Island (Figures 6a-c). Wetlands A, C, E and F are non-tidal freshwater wetlands. Wetlands B, D, G and H are tidal estuarine wetlands. No freshwater "waters" resources were identified on the island. Tidal waters were mapped on ESI using a combination of two delineation methods.

E.1 Freshwater Non-Tidal Wetlands

Wetlands A, C, E, and F are non-tidal wetlands that are located at a relatively higher elevation than the tidal wetlands; well above the calculated HMT. The Hydrogeomorphic (HGM) class of these wetlands was generally Slopes/Flats. The Cowardin classes of these wetlands were a mix of Palustrine Scrub-Shrub (PSS) and Palustrine Emergent (PEM).

The non-tidal wetlands have three sources of hydrology: direct precipitation, runoff, and a high groundwater table. A narrow un-maintained ditch runs through a portion of Wetland C that was likely installed to drain the area. The outfall of this ditch is blocked by a slight topological rise and it is no longer functioning properly to drain the wetland. During high-tide events it is possible for water to enter the ditch; however, tidal influence is not a primary input of hydrology for this wetland as it is likely to occur very infrequently and for a short duration. Wetlands E and F are separated by an artificial berm (constructed around 1983; Figure 5d) and are likely connected hydrologically by groundwater. Indicators of wetland hydrology observed at the plot locations included primary indicators: High Water Table (A1), Saturation (A3), and Oxidized Rhizospheres (C3); as well as secondary indicators: Drainage Patterns (B10), Geomorphic Position (D2), FAC-Neutral Test (D5), and Raised Ant-Mounds (D6). Hummocky topography was observed in areas that was either as result of raised ant-mounds or frost-heave (D4).

The soil textures in these wetlands included sandy loam, silt loam and silty clay loam. Hydric soil indicators observed at the plot locations included: Redox Dark Surface (F6), Depleted Matrix (F3) and Sandy Redox (S5).

The non-tidal wetlands were dominated by native and non-native vegetation such as: bentgrass (*Agrostis* species), black twinberry (*Lonicera involucrata*), common velvetgrass (*Holcus lanatus*), creeping buttercup (*Ranunculus repens*), Hooker willow (*Salix hookeriana*), red elderberry (*Sambucus racemosa*), soft rush (*Juncus effusus*), and yellow iris (*Iris pseudacorus*). The non-tidal wetland data plots had hydrophytic plant communities based on the 50/20 dominance test.

E.2 Estuarine Tidal Wetlands

Wetlands B, D, G and H are tidal wetlands. These wetlands are located entirely below the delineated tidal waters boundary. The primary HGM class of the tidal wetlands is Marine-Sourced High Tidal Fringe (MSH); the lower portion of Wetland B is Marine-Sourced Low Tidal Fringe (MSL). The Cowardin class of the tidal wetlands is Estuarine Emergent (EEM). Since Wetland B is located entirely below the calculated HMT, we conducted a wetland "determination" for this area based on vegetation; which did not include sample plots.

Wetlands D, G and H only receive tidal surface water during higher-high tides (maybe only a few times annually) and are considered “high marsh”. The lower portion of Wetland B is on a beach and is inundated at least once daily in a majority of the days each month, and is considered a “low marsh”. Wetlands D, G and H displayed primary indicators of wetland hydrology: High Water Table (A2) and Saturation (A3). Surface water was observed in Wetland B during a high-tide event.

Soil textures in the tidal wetlands consist of sand and loamy sand. The hydric soil indicator Sandy Redox (S5) was observed at the wetland plot locations.

The herbaceous layer in Wetland D is dominated by Baltic rush (*Juncus balticus*). Wetlands G and H are dominated by bentgrass, common velvetgrass, slough sedge (*Carex obnupta*), and soft rush. The dominant vegetation in Wetland B includes: annual bluegrass (*Poa annua*), Baltic rush, bentgrass, and Pacific silverweed (*Argentina anserina*). The tidal wetland plots had hydrophytic plant communities based on the 50/20 dominance test.

E.3 Uplands (including areas below the tidal waters boundary)

We did not observe any primary indicators of wetland hydrology in the upland plots. Some of the upland plots had either a nominal (FAC dominated) hydrophytic plant community or hydric soils, but never had primary or secondary indicators of wetland hydrology. The presence of hydric soils in some of the upland plots may have been a result of historic dredge spoil placement and compaction (e.g observed near Plots 34-36).

The uplands adjacent to the non-tidal wetlands are dominated by American dunegrass (*Leymus mollis*), bentgrass, black twinberry, gorse (*Ulex europaeus*), hairy bittercress (*Cardamine hirsuta*), Himalayan blackberry (*Rubus areminacus*), purple foxglove (*Digitalis purpurea*), red elderberry, Scotch broom (*Cytisus scoparius*), tall fescue (*Schedonorus arundinaceus*), and trailing blackberry (*Rubus ursinus*).

The uplands in proximity to the tidal wetlands are dominated by FACU and UPL species such as American dunegrass and American beachgrass (*Ammophila breviligulata*). None of the upland plots adjacent to the tidal wetlands (Plots 6, 8 and 19) had positive indicators of wetland hydrology or soils. These areas are infrequently flooded and have well-drained coarse textured soils (sand). However, since some of these "uplands" are below the delineated tidal waters boundary, they will likely be regulated as jurisdictional "waters".

E.4 Wetland Boundaries

The wetland boundaries were delineated based on the presence of all three wetland indicators. In most cases there was a topological break near the wetland boundary and a change in plant community composition. Red elderberry (FACU) was observed in both uplands and wetlands and was not a good indicator of the boundary. Other species such as Scotch broom (UPL) and gorse (UPL) were found only in the uplands, and yellow iris (OBL) was primarily found in wetlands. The tidal wetland boundaries had abrupt shifts from hydrophytic plant communities to upland plant communities. The presence of primary and secondary hydrology indicators were also used to delineate the wetland boundaries, with no hydrology indicators observed in upland areas. The boundaries were fine-tuned by spot checking the upper soil profile with an auger.

E.5 Tidal Waters

The tidal waters boundary delineated using the gauge calculated method and field indicator method were similar. In general, we observed the calculated 11.34 foot HMT elevation to be in close proximity to HMT/HTL field indicators. The 2009 LiDAR data is highly accurate ($^{+}$/- 0.1 inch), but the dynamic nature of the island due to erosion, dunal shifts, and large wood accumulation, made it inaccurate in areas.

Waters comparison transects (WT-1 through WT-12) compared the calculated HMT elevation to the field indicator delineated boundary (Appendix D). In many areas, the calculated HMT was very close (within 2 to 4 horizontal feet) to the field indicator delineated boundary. In other areas, such as along the southern shoreline, we observed recent erosion (WT-4, WT-5, WT-6) with nearly vertical banks, and inaccuracies in the 2009 LiDAR generated topography maps. Large wood accumulations were also noted on the southwestern portion of the island at elevations higher than predicted by the calculated HMT (WT-3). We believe that the LiDAR data may be less accurate in

these areas due to the high volume of large wood, and its movement on a semi-annual or annual basis. Wind drifts on the northern to northwestern shoreline were also noted, which likely have resulted in higher topography than was displayed by the 2009 LiDAR data.

A field indicator delineation of tidal waters (HMT and HTL) was completed based on several observed indicators: uppermost wood or debris wrack line, water-mark line, tidally eroded banks, and vegetation community shifts. In many areas of ESI, field indicators of the tidal waters boundary were obvious due to recent erosion and large woody debris accumulations. In other areas, such as the eastern portion of the island, field indicators were more difficult to identify. This was the case because wood debris was sparsely scattered in the area without an identifiable upper wrack line, and with relatively flat topography. The HMT and HTL do not include storm surges, making it difficult to determine which large woody debris was placed during surge events and which was a result of the HMT/HTL.

Due to the inaccuracies of the LiDAR data in areas, and difficulty of identifying field indicators in others, we created a tidal waters boundary line (HMT and HTL) that is the result of merging both the calculated HMT line and field indicator line. This merged tidal waters boundary utilizes the most accurate delineation method in each area of ESI, reducing the sources of error presented by each method. This tidal waters boundary represents the delineated HMT and HTL.

F. DEVIATION FROM LWI OR NWI MAPPED WETLANDS

ESI is not within the urban growth boundary of a city, thus no Local Wetland Inventory (LWI) has been prepared.

The National Wetland Inventory (NWI) Map (Figure 3) displays wetland and estuarine water types on or near the island. A Palustrine Emergent, seasonally flooded, spoil (PEMCS) wetland is mapped on the eastern portion of the island in the same vicinity of delineated Wetlands E and F. However, the shapes of the delineated wetland polygons are different than mapped by the NWI. Estuarine Intertidal Emergent, regularly flooded, spoil (E2EMNS) wetland is mapped on the northern shore of ESI in the vicinity of delineated Wetlands B, C, D, G, and H. These wetlands were separated by upland plant communities and topographic breaks, and were not contiguous as displayed by the NWI. Estuarine Intertidal Emergent, irregularly flooded, spoil (E2EMPS) wetland and E2EMNS is mapped in western portions of ESI, but we did not delineate wetlands in these areas. Much of ESI is mapped as upland by the NWI. Delineated Wetland A is in an area that is mapped as upland. Tidal waters areas surrounding the island are mapped as a variety of intertidal and subtidal waters classes (E1UBL, E2USM, E2USNS, E2USPS). The delineated tidal waters boundary is in the same vicinity as mapped by the NWI, but of a different shape.

G. MAPPING METHODS AND ESTIMATED ACCURACY

Spatial data were collected using a survey-grade Trimble GeoXT GPS unit which can achieve sub-meter accuracy after post-processing. All site features including sample plots, photo points, and wetland and waters boundaries, were collected as point data to allow for point-averaging and

differential correction. Data were collected on several days and the accuracy after post-processing varied slightly due to satellite alignment, terrain, etc. On average, approximately 64% of the points collected were accurate to within 30-50 centimeters, 35% were within 0.5-1.0 meter, and 1% were within 1.0-2.0 meters.

H. ADDITIONAL INFORMATION

This wetland delineation was conducted as part of a larger Environmental Impact Statement (EIS) study. For more information about the island and this EIS, please refer to the: DRAFT *Double-crested Cormorant Management Plan to Reduce Predation of Juvenile Salmonids in the Columbia River Estuary* (USACE 2014).

I. RESULTS AND CONCLUSIONS

Wetlands and waters on East Sand Island were delineated by Green Banks LLC in February of 2014. A total of 7.135 acres (310,818 ft^2) of wetlands were delineated, including 6.026 acres (262,492 ft^2) of non-tidal freshwater wetlands, and 1.109 acres (48,326 ft^2) of tidal wetlands. Forty-three data collection plots were established throughout the island to document the presence or absence of wetland vegetation, soils and hydrology. The Cowardin classes of the delineated wetlands were Palustrine Scrub-Shrub, Palustrine Emergent, and Estuarine Emergent. The HGM classes of the delineated wetlands were Slopes, Flats, Marine-Sourced High Tidal Fringe, and Marine-Sourced Low Tidal Fringe. No freshwater "waters" resources were identified.

Tidal waters were delineated using two methods (gauge calculated and field indicator) and a merged boundary line was created to achieve the highest level of accuracy in areas where either method had observed error. The tidal waters boundary represents both the highest measured tide and the high tide line. This is the case because the definitions and methods used to determine the HMT and HTL are very similar, if not synonymous, and would result in the delineation of the same approximate boundary. The acreage of tidal waters was not calculated as the island is located within the Columbia River.

Table 3 indicates the areas of potentially jurisdictional wetlands and waters on the site. Wetlands B, D, G, and H were delineated below the tidal waters boundary. Even though these areas met wetland criteria, they may be regulated as tidal waters.

Table 3: Wetlands and Waters within the Study Area

Name	Area (square feet)	Cowardin Class	HGM Class	DSL Regulated[1]	USACE Regulated[1]
Wetland A	890	PSS	S	Yes (as wetland)	Yes (as wetland)
Wetland B	21,330	EEM	MSL, MSH	Yes (as tidal waters)	Yes (as tidal waters)
Wetland C	33,957	PSS, PEM	S/F	Yes (as wetland)	Yes (as wetland)
Wetland D	1,730	EEM	MSH	Yes (as tidal waters)	Yes (as tidal waters)
Wetland E	8,869	PSS	S/F	Yes (as wetland)	Yes (as wetland)
Wetland F	218,776	PSS, PEM	S/F	Yes (as wetland)	Yes (as wetland)
Wetland G	1,045	EEM	MSH	Yes (as tidal waters)	Yes (as tidal waters)
Wetland H	24,221	EEM	MSH	Yes (as tidal waters)	Yes (as tidal waters)

[1]This is based on Green Banks' best professional judgment. Only DSL and USACE can determine if they regulate these wetlands and waters.

J. DISCLAIMER

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

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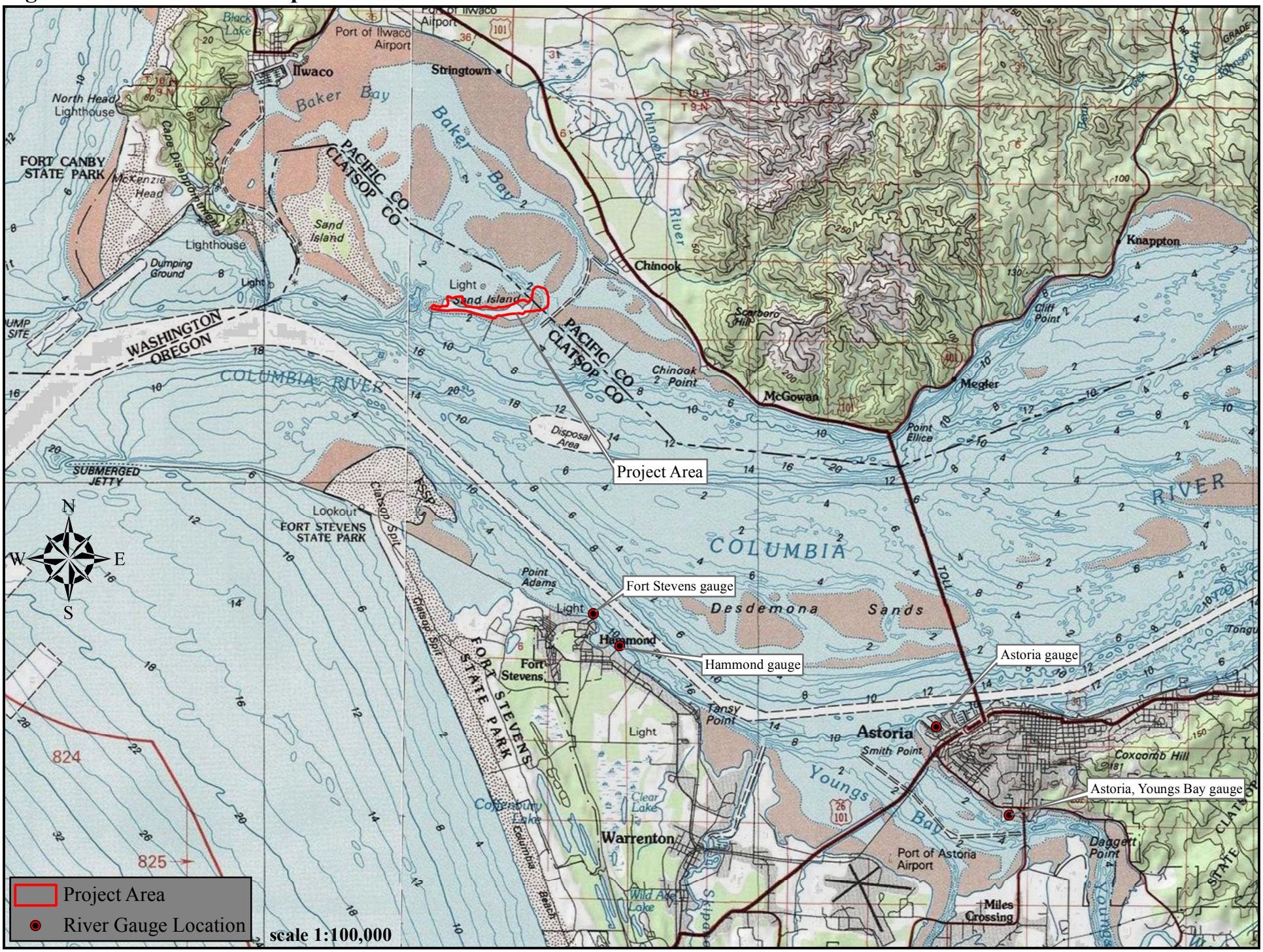
APPENDIX A

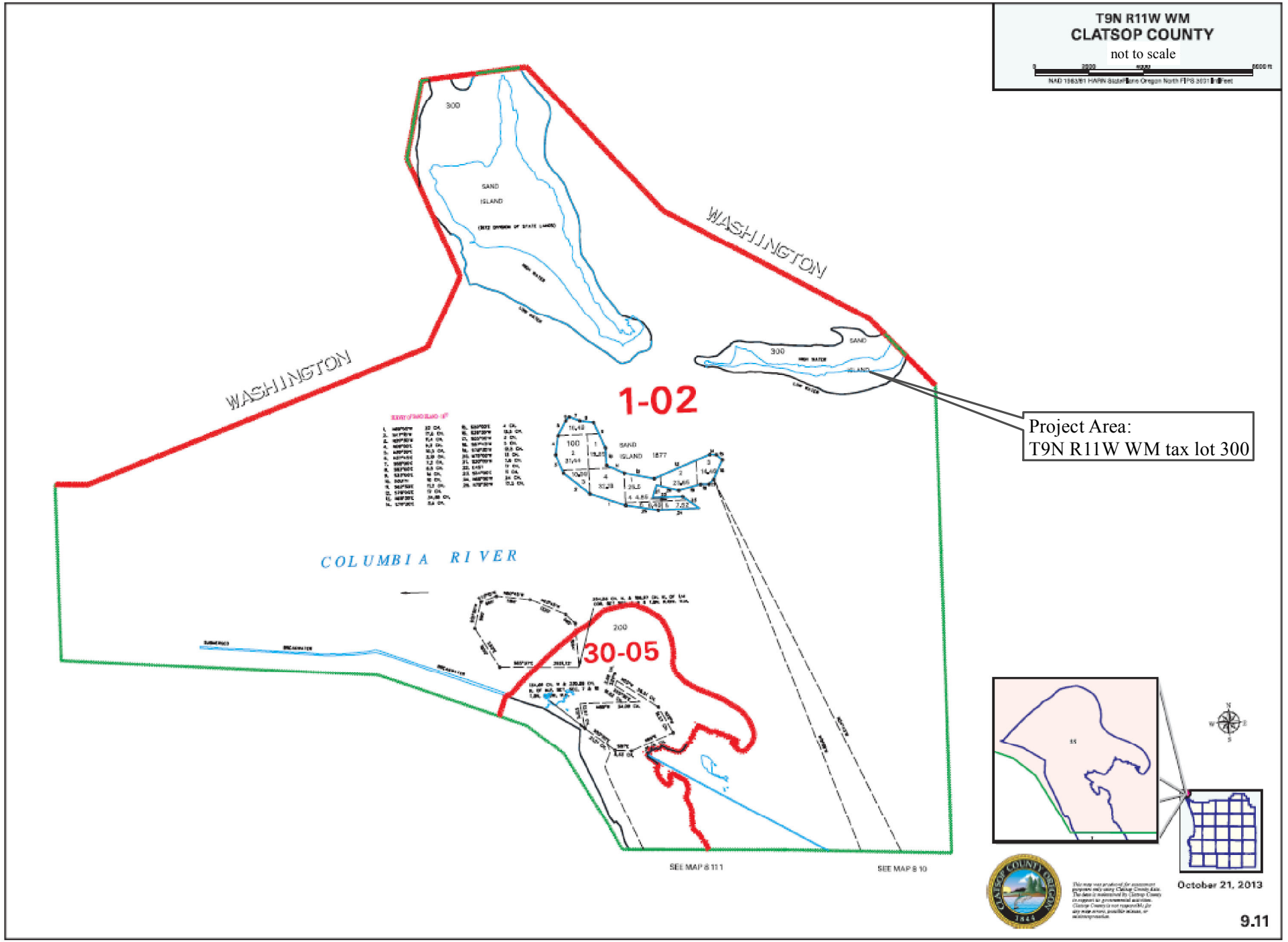
Maps

Figure 1: Site Location Map



Note: Background map data compliments of National Geographic TOPO! and USA Topo Maps; Copyright:© 2013 National Geographic Society, i-cubed. Map produced by Green Banks LLC.

Figure 2: Tax Lot Map



Note: Tax lot map compliments of Clatsop County and ORMAP. Map produced by Green Banks LLC.

Figure 3: National Wetland Inventory (NWI) Map

Note: Background layers compliments of the USFWS online web mapper and Bing Aerials (2011). Map produced by Green Banks LLC.

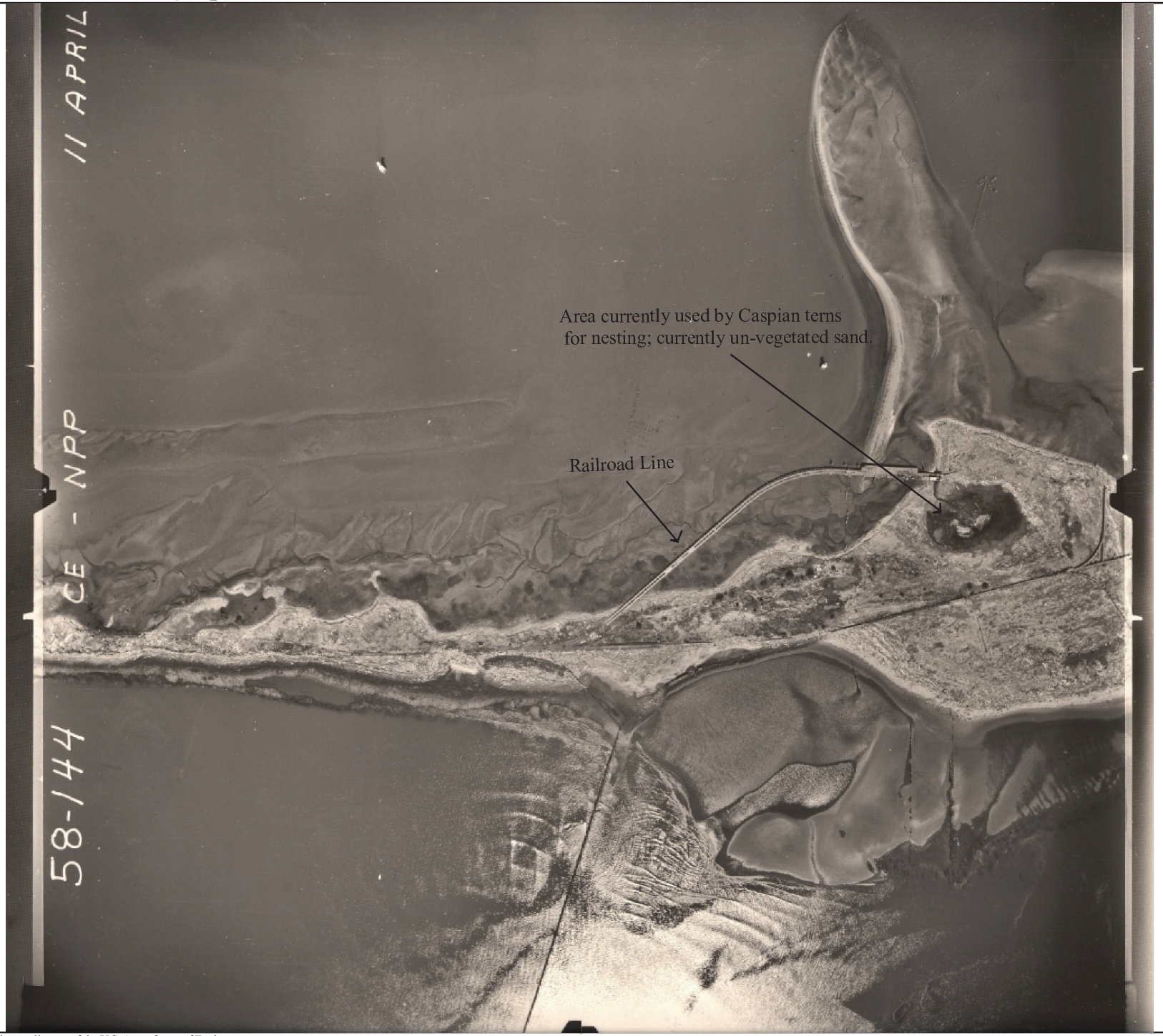
Figure 4: Natural Resource Conservation Service (NRCS) Soil Map

Note: Background layers compliments of the NRCS web soil survey (Clatsop Co.) and Bing Aerials (2011). Map produced by Green Banks LLC.

Figure 5a: Aerial Photograph 1944 **East Sand Island, Oregon**

Note: Aerial photograph compliments of the U.S. Army Corps of Engineers.

Figure 5b: Aerial Photograph 1958 **East Sand Island, Oregon**

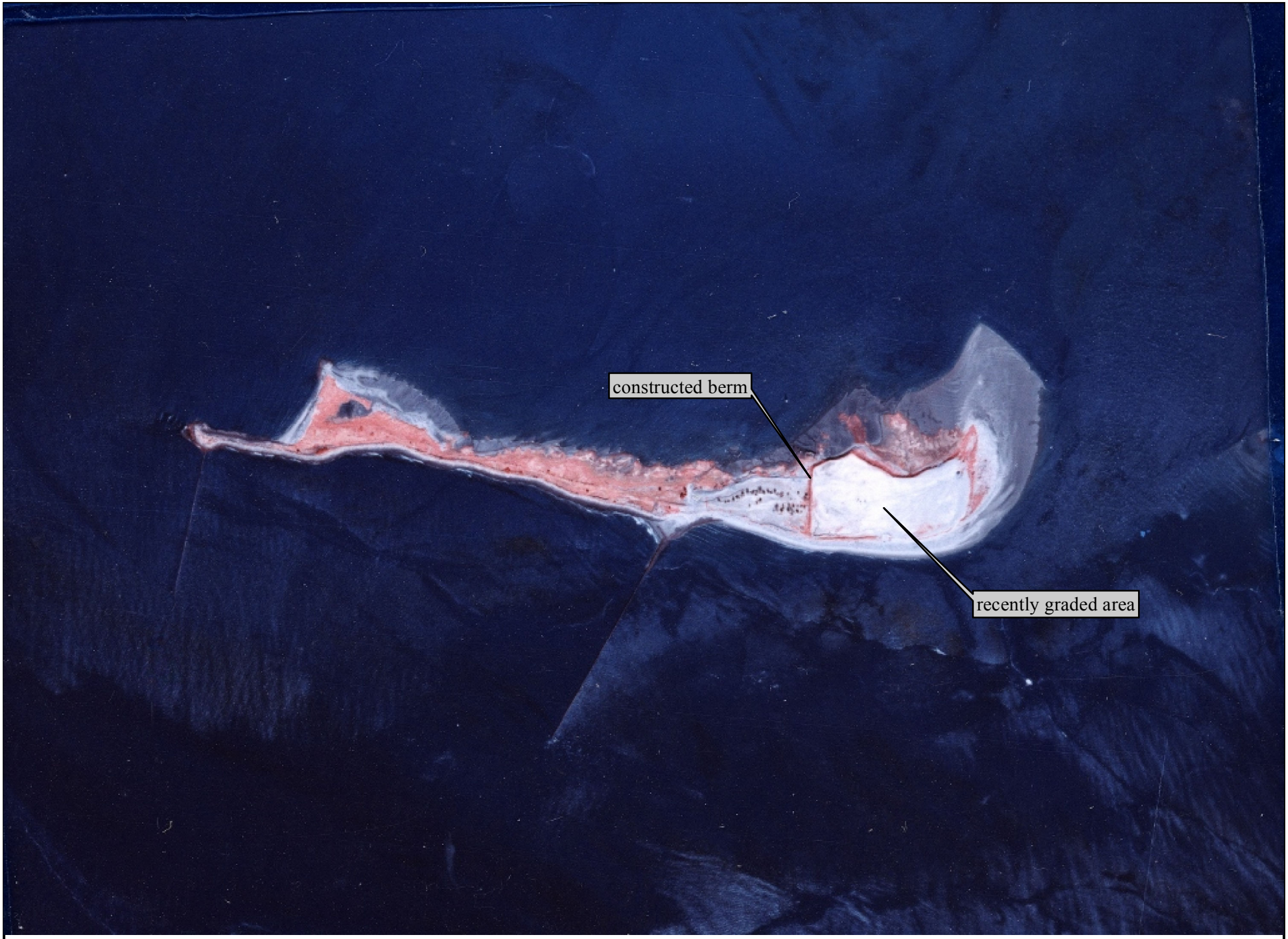


Note: Aerial photograph compliments of the U.S. Army Corps of Engineers.

Figure 5c: Aerial Photograph 1975 **East Sand Island, Oregon**

Note: Aerial photograph compliments of the U.S. Army Corps of Engineers.

Figure 5d: Aerial Photograph 1983 **East Sand Island, Oregon**



Note: Aerial photograph compliments of the U.S. Army Corps of Engineers.

Figure 5e: Aerial Photograph 2001 **East Sand Island, Oregon**

Note: Aerial photograph compliments of the U.S. Army Corps of Engineers.

Figure 5f: Aerial Photograph 2012 **East Sand Island, Oregon**

Note: Aerial photograph compliments of Google Earth.

Figure 6a: Wetland and Waters Delineation Map **East Sand Island, Oregon**

Background Files: Aerial photograph compliments of Bing 2011; LIDAR data compliments of the Corps, flown 2009. GPS data collected in February of 2014. Map produced by Green Banks LLC.

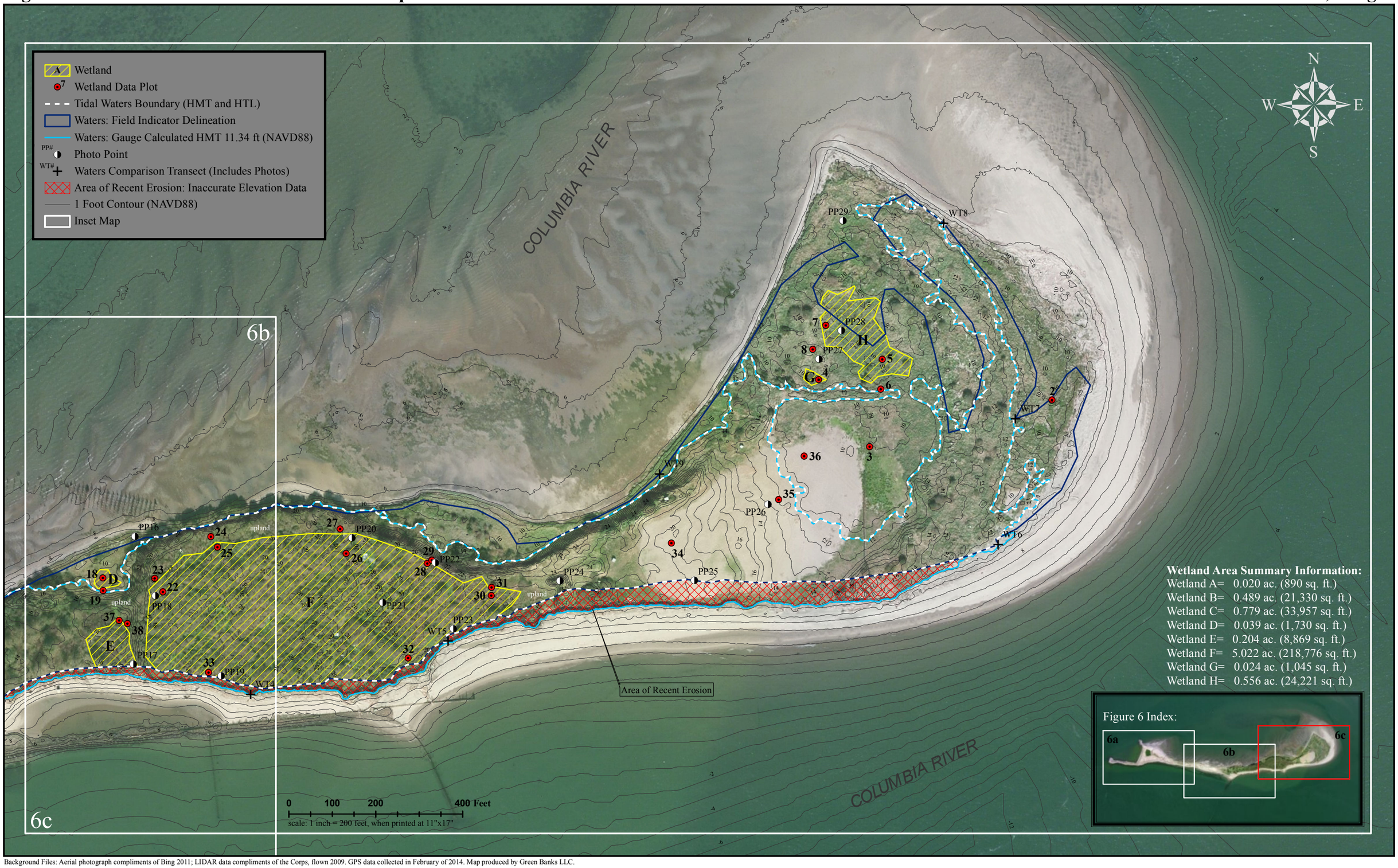
Figure 6b: Wetland and Waters Delineation Map **East Sand Island, Oregon**

Wetland Area Summary Information:

Wetland A= 0.020 ac. (890 sq. ft.)
Wetland B= 0.489 ac. (21,330 sq. ft.)
Wetland C= 0.779 ac. (33,957 sq. ft.)
Wetland D= 0.039 ac. (1,730 sq. ft.)
Wetland E= 0.204 ac. (8,869 sq. ft.)
Wetland F= 5.022 ac. (218,776 sq. ft.)
Wetland G= 0.024 ac. (1,045 sq. ft.)
Wetland H= 0.556 ac. (24,221 sq. ft.)

Background Files: Aerial photograph compliments of Bing 2011; LIDAR data compliments of the Corps, flown 2009. GPS data collected in February of 2014. Map produced by Green Banks LLC.

Figure 6c: Wetland and Waters Delineation Map **East Sand Island, Oregon**



Wetland Area Summary Information:

Wetland A= 0.020 ac. (890 sq. ft.)
Wetland B= 0.489 ac. (21,330 sq. ft.)
Wetland C= 0.779 ac. (33,957 sq. ft.)
Wetland D= 0.039 ac. (1,730 sq. ft.)
Wetland E= 0.204 ac. (8,869 sq. ft.)
Wetland F= 5.022 ac. (218,776 sq. ft.)
Wetland G= 0.024 ac. (1,045 sq. ft.)
Wetland H= 0.556 ac. (24,221 sq. ft.)

Background Files: Aerial photograph compliments of Bing 2011; LIDAR data compliments of the Corps, flown 2009. GPS data collected in February of 2014. Map produced by Green Banks LLC.

APPENDIX B

Data Forms

PAGE INSERTED TO IMPROVE FORMAT WHEN PRINTING DOUBLE-SIDED

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/19/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 1

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): low elevation bench | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.981 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation Yes ,Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____,Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

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

Remarks:
Plot 1 is located in a low elevation area which is separated from the calculated highest measured tide elevation by a sand berm (north) and a large-angular rock wall (south). Vegetation was disturbed due to high levels of avian browse.

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 5 ft.)			
1. *Poa annua*	1%	No	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	1%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	99%		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Vegetation is highly disturbed due to extreme avian browse. *Poa annua* had low cover and was not considered dominant.

SOIL

Sampling Point: **1**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-10	10YR3/1	100	no redox				sand	
10-28	10YR3/1	98	10YR3/2	2	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):		
Water Table Present?	Yes _____	No X	Depth (inches):	>28"	**Wetland Hydrology Present?**
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches):	>28"	**Yes** _____ **No** **X**

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

Remarks:
Soils were noted to be slightly moist during the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/19/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 2

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): low-elevation tidal floodplain | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): LRR A | Lat: 46.264 | Long: -123.966 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Water | NWI classification: E1UBL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Plot 2 is located on a low elevation terrace, below the calculated highest measured tide elevation.

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Sambucus racemosa*	2%	No	FACU
2. *Rubus armeniacus*	1%	No	FACU
3.			
4.			
5.			
Total Cover:	3%		
Herb Stratum (Plot size: 5 ft.)			
1. *Leymus mollis*	50%	Yes	FACU
2. *Poa species*	35%	Yes	FAC ?
3. *Rumex crispus*	10%	No	FAC
4. *Cardamine hirsuta*	5%	No	FACU
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Poa species was assumed to be FAC or wetter. Shrub species had low cover and were not considered dominant.

SOIL

Sampling Point: **2**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-12	10YR3/1	99	7.5YR4/6	1	C	M	sand	
12-24	10YR3/1	80	no redox				sand	mixed matrix
	10YR2/1	20	no redox					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):		
Water Table Present?	Yes X	No ___	Depth (inches):	10.5"	**Wetland Hydrology Present?**
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	9"	**Yes** **X** **No** ___

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

Remarks:
The high groundwater table is likely a result of recent rainfall.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/19/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 3

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.264 | Long: -123.967 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: E2USNS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

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

Remarks:
Plot 3 is located in a low-elevation gentle depression, below the calculated highest measured tide elevation. It is approximately 40 feet east of an erosion control fence used for avian hazing.

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 5 ft.)			
1. *Leymus mollis*	60%	Yes	FACU
2. *Poa annua*	25%	Yes	FAC
3. *Poa species*	10%	No	FAC ?
4. unknown herb	5%	No	?
5.			
6.			
7.			
8.			
Total Cover:	95%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	5%		

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Poa species was assumed to be FAC or wetter. Rosettes of an unknown herb were observed within the plot but were too young to identify; it was not a dominant species.

SOIL

Sampling Point: **3**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-12	10YR3/2	99	10YR4/6	1	C	M	sand	
12-24	10YR3/1	95	10YR4/6	5	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	X	No	___	Depth (inches): 14"
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 13"

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

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

Remarks:
The high groundwater table is likely a result of recent rainfall.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/19/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 4

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.264 | Long: -123.968 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: E2USNS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:
Plot 4 is located in a low-elevation gentle depression, below the calculated highest measured tide elevation. Plot 4 is located approximately 60 feet southeast and 2 feet lower than Plot 8 (upland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Sambucus racemosa*	1%	No	FACU
2.			
3.			
4.			
5.			
Total Cover:	1%		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex obnupta*	45%	Yes	OBL
2. *Holcus lanatus*	40%	Yes	FAC
3. *Iris pseudacorus*	5%	No	OBL
4. *Poa species*	5%	No	FAC ?
5. *Digitalis purpurea*	2%	No	FACU
6. *Dipsacus fullonum*	2%	No	FAC
7. *Rumex crispus*	1%	No	FAC
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Poa species was assumed to be FAC or wetter. *Sambucus racemosa* had a low cover and was not considered to be dominant.

SOIL

Sampling Point: **4**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-8	10YR3/2	98	10YR4/6	2	C	M	sand	
8-20	10YR3/2	97	10YR4/6	3	C	M	sand	refusal at 20"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:
Refusal at 20 inches likely due to buried wood.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	X	No	___	Depth (inches): 9"
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 8"

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

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

Remarks:

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/19/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 5

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.264 | Long: -123.967 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Water | NWI classification: E2USNS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:
Plot 5 is located in a low-elevation gentle depression, below the calculated highest measured tide elevation. Plot 5 is located approximately 65 feet north and 2 feet lower in elevation than Plot 6 (upland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Salix hookeriana*	35%	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	35%		
Herb Stratum (Plot size: 5 ft.)			
1. *Agrostis species*	40%	Yes	FAC ?
2. *Holcus lanatus*	36%	Yes	FAC
3. *Carex obnupta*	20%	Yes	OBL
4. *Cirsium vulgare*	3%	No	FACU
5. *Iris pseudacorus*	1%	No	OBL
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum	0%		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Agrostis species was assumed to be FAC or wetter.

SOIL

Sampling Point: **5**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-4	10YR3/2	100	no redox				sand	
4-24	10YR3/2	91	10YR4/6	4	C	M	sand	
			10YR2/1	5	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	X	No	___	Depth (inches): 3"
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 2"

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

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

Remarks:

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/19/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 6

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.264 | Long: -123.967 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Water | NWI classification: E2USNS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

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

Remarks:
Plot 6 is located on a low-elevation bench near the calculated highest measured tide elevation. Plot 6 is approximately 60 feet south and 2 feet higher in elevation than Plot 5 (wetland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Rubus armeniacus*	1%	No	FACU
2.			
3.			
4.			
5.			
Total Cover:	1%		
Herb Stratum (Plot size: 5 ft.)			
1. *Leymus mollis*	90%	Yes	FACU
2. *Cardamine hirsuta*	5%	No	FACU
3. *Lamium purpureum*	5%	No	UPL
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Rubus armeniacus had very low cover and was not considered dominant.

SOIL

Sampling Point: **6**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-16	10YR3/2	100	no redox				sand	
16-24	10YR3/2	97	10YR4/6	3	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):		
Water Table Present?	Yes _____	No X	Depth (inches):	>24"	
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches):	>24"	

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

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

Remarks:
Soils were noted to be moist during the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/19/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 7

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.264 | Long: -123.968 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Water | NWI classification: E2USNS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Plot 7 is located in a low-elevation gentle depression, lower in elevation than the calculated highest measured tide. Plot 7 is approximately 60 feet northeast and 1 foot lower than Plot 8 (upland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus latifolia*	1%	No	FACW
2.			
3.			
4.			
Total Cover:	1%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 5 ft.)			
1. *Agrostis species*	45%	Yes	FAC ?
2. *Carex obnupta*	30%	Yes	OBL
3. *Juncus effusus*	20%	Yes	FACW
4. *Digitalis purpurea*	4%	No	FACU
5. *Dipsacus fullonum*	1%	No	FAC
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Agrostis species was assumed to be FAC or wetter. *Fraxinus latifolia* had very low cover and was not considered a dominant.

SOIL

Sampling Point: **7**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-6	10YR3/1	100	no redox				sand	
6-24	10YR3/1	97	10YR3/4	3	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- X FAC-Neutral Test (D5)
- X Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	X	No	___	Depth (inches): 10.5"
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 9.5"

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

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

Remarks:
Hummocky vegetation; it was unclear if the hummocks were a result of frost-heaving (D4) or ant mounds (D6).

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/19/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 8

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): low elevation bench | Local relief (concave, convex, none): convex | Slope (%): 0

Subregion (LRR): LRR A | Lat: 46.264 | Long: -123.968 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Water | NWI classification: E2USNS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

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

Remarks:
Plot 8 is located on a low-elevation bench approximately 60 feet southwest and 1 foot higher than Plot 7 (wetland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Cytisus scoparius*	2%	No	UPL
2.			
3.			
4.			
5.			
Total Cover:	2%		
Herb Stratum (Plot size: 5 ft.)			
1. *Leymus mollis*	99%	Yes	FACU
2. *Cardamine hirsuta*	1%	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Cytisus scoparius had low cover and was not considered to be dominant.

SOIL

Sampling Point: **8**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-6	10YR3/2	100	no redox				loamy sand	
6-24	10YR3/2	100	no redox				sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes	_____	No	X	Depth (inches): _____
Water Table Present?	Yes	_____	No	X	Depth (inches): >24"
Saturation Present? (includes capillary fringe)	Yes	_____	No	X	Depth (inches): >24"

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

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

Remarks:

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/20/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 9

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.980 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Plot 9 is located in a low-elevation gentle depression.

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus latifolia*	5%	Yes	FACW
2.			
3.			
4.			
Total Cover:	5%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 5 ft.)			
1. *Poa species*	25%	Yes	FAC ?
2. *Agrostis species*	24%	Yes	FAC ?
3. *Cerastium glomeratum*	20%	Yes	FACU
4. *Poa annua*	20%	Yes	FAC
5. *Holcus lanatus*	5%	No	FAC
6. *Iris pseudacorus*	5%	No	OBL
7. *Claytonia perfoliata*	1%	No	FAC
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Poa and *Agrostis* species were assumed to be FAC or wetter.

SOIL

Sampling Point: **9**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-6	10YR2/2	100	no redox				sandy loam	
6-14	10YR2/1	99	10YR3/4	1	C	M	sandy loam	
14-24	10YR3/2	95	10YR4/6	5	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): >24"
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): >24"

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

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

Remarks:
Soils were noted to be moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/20/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **10**

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): slight depression on terrace | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.979 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

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

Remarks:
Plot 10 is located in a slight depression on a low-elevation terrace, below the calculated highest measured tide elevation.

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Lonicera involucrata*	4%	No	FAC
2.			
3.			
4.			
5.			
Total Cover:	4%		
Herb Stratum (Plot size: 5 ft.)			
1. *Poa species*	50%	Yes	FAC ?
2. *Cerastium glomeratum*	20%	Yes	FACU
3. *Agrostis species*	10%	No	FAC ?
4. *Claytonia perfoliata*	10%	No	FAC
5. *Holcus lanatus*	5%	No	FAC
6. *Senecio vulgaris*	5%	No	FACU
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Poa and *Agrostis* species were assumed to be FAC or wetter. *Lonicera involucrata* had low cover and was not considered dominant.

SOIL

Sampling Point: **10**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-3	10YR3/2	100	no redox				loamy sand	some org. mat.
3-24	10YR3/2	99	10YR3/3	1	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:
Some organic material located at the 0-3 inch depth.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): >24"
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): >24"

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

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

Remarks:

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/20/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 11

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): depression on terrace | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.979 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:
Plot 11 is located in a low-elevation depression. It is approximately 25 feet northeast and 3 feet lower than Plot 43 (upland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	40%	Yes	FAC
2.			
3.			
4.			
Total Cover:	40%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Malus fusca*	40%	Yes	FACW
2. *Rubus armeniacus*	10%	No	FACU
3. *Lonicera involucrata*	5%	No	FAC
4. *Sambucus racemosa*	3%	No	FACU
5.			
Total Cover:	58%		
Herb Stratum (Plot size: 5 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	0%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	100%		

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
No herbaceous layer due to heavy shade and leaf debris. *Iris pseudacorus* and *Urtica diocia* were observed in close proximity to the plot.

SOIL

Sampling Point: **11**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-4	10YR2/1	100	no redox				loamy sand	some org. mat.
4-8	10YR3/2	97	10YR3/6	3	C	M	loamy sand	
8-10	2.5YR2.5/3	100	no redox				loamy sand	
10-24	10YR3/2	97	10YR3/4	3	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:
Some organic material located within 0 to 4 inches in depth.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___	
Water Table Present?	Yes ___	No X	Depth (inches):	>24"	**Wetland Hydrology Present?**
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>24"	**Yes** X **No** ___

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

Remarks:

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/20/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 12

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): gentle slope | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.978 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:
Plot 12 is located near a low-elevation linear drainage feature (unmaintained ditch). It is approximately 80 feet north and 4 feet lower than Plot 13 (upland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Sambucus racemosa*	15%	Yes	FACU
2. *Lonicera involucrata*	10%	Yes	FAC
3. *Rubus spectabilis*	5%	No	FAC
4.			
5.			
Total Cover:	30%		
Herb Stratum (Plot size: 5 ft.)			
1. *Agrostis species*	50%	Yes	FAC ?
2. *Iris pseudacorus*	30%	Yes	OBL
3. *Holcus lanatus*	20%	Yes	FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Agrostis species was assumed to be FAC or wetter.

SOIL

Sampling Point: **12**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-3	10YR2/1	100	no redox				silt loam	
3-24	10YR3/2	80	10YR4/6	20	C	M	silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- X Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	X	No	___	Depth (inches): 1"
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): to surface

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

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

Remarks:
Hummocky vegetation; it was unclear if the hummocks were a result of frost-heaving (D4) or ant mounds (D6).

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/20/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 13

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.978 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes ____	No **X**

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

Remarks:
Plot 13 is located approximately 10 feet northwest of the south shoreline top-of-bank. It is approximately 80 feet south and 4 feet higher than Plot 12 (wetland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Lonicera involucrata*	30%	Yes	FAC
2. *Rubus spectabilis*	25%	Yes	FAC
3. *Sambucus racemosa*	15%	Yes	FACU
4. *Ulex europaeus*	4%	No	FACU
5. *Rubus armeniacus*	1%	No	FACU
Total Cover:	75%		
Herb Stratum (Plot size: 5 ft.)			
1. *Cardamine hirsuta*	20%	Yes	FACU
2. *Cerastium glomeratum*	20%	Yes	FACU
3. *Agrostis species*	10%	No	FAC ?
4. *Plantago species*	9%	No	OBL to UPL
5. *Poa annua*	3%	No	FAC
6. *Rumex acetosella*	1%	No	FACU
7. *Rumex crispus*	1%	No	FAC
8.			
Total Cover:	64%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	36%		

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Agrostis species was assumed to be FAC or wetter. *Plantago* species was too small (immature) to identify; it was likely *P. major*.

SOIL

Sampling Point: **13**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-4	10YR3/2	100	no redox				loamy sand	
4-24	10YR4/2	80	7.5YR4/6	20	C	M	silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	
Water Table Present?	Yes ___	No X	Depth (inches):	>24"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>24"

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

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

Remarks:
Soils were noted to be slightly moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/20/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 14

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave | Slope (%): 3

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.977 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:
Plot 14 is located near a low-elevation linear drainage feature (unmaintained ditch). It is approximately 45 feet southeast and 4 feet lower than Plot 15 (upland). Plot 14 is in close proximity to the calculated highest measured tide elevation.

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 5 ft.)			
1. *Agrostis capillaris*	55%	Yes	FAC
2. *Iris pseudacorus*	30%	Yes	OBL
3. *Cardamine hirsuta*	10%	No	FACU
4. *Digitalis purpurea*	3%	No	FACU
5. *Lotus corniculatus*	2%	No	FAC
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		

% Bare Ground in Herb Stratum 0%

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: **14**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-4	10YR2/2	100	no redox				sandy loam	
4-24	10YR4/2	85	7.5YR4/6	15	C	M	silt loam	with some sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	X	No	___	Depth (inches): 20"
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 18"

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

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

Remarks:
Vegetation hummocks observed in close proximity to plot.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/20/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **15**

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.977 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

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

Remarks:
Plot 15 is located at the top of a hillslope approximately 45 feet northwest and 4 feet higher in elevation than Plot 14 (wetland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Rubus armeniacus*	25%	Yes	FACU
2. *Sambucus racemosa*	2%	No	FACU
3.			
4.			
5.			
Total Cover:	27%		
Herb Stratum (Plot size: 5 ft.)			
1. *Leymus mollis*	100%	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum	0%		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:

SOIL

Sampling Point: **15**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-2	10YR2/2	100	no redox				loamy sand	
2-24	10YR3/2	100	no redox				sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):		
Water Table Present?	Yes ___	No X	Depth (inches):	>24"	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>24"	

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

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

Remarks:

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/20/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **16**

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): gentle hillslope | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.976 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

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

Remarks:
Plot 16 is located in close proximity to linear drainage feature and is approximately 20 feet northwest and 2 feet lower than Plot 17 (upland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Sambucus racemosa*	4%	No	FACU
2. *Lonicera involucrata*	3%	No	FAC
3.			
4.			
5.			
Total Cover:	7%		
Herb Stratum (Plot size: 5 ft.)			
1. *Agrostis species*	99%	Yes	FAC ?
2. *Vicia americana*	1%	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Agrostis species was assumed to be FAC or wetter. Shrub species had low cover and were not considered dominant. *Vicia americana* ID tentative.

SOIL

Sampling Point: **16**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-4	10YR2/2	100	no redox				silt loam	
4-24	10YR3/2	90	7.5YR4/6	10	C	M	silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- X Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): >24"
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 16"

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

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

Remarks:

No free-water was observed in pit after 5 minutes. We assume that the vegetation hummocks observed were a result of Raised Ant Mounds (D6), but they could also be a result of Frost-Heave (D4).

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/20/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 17

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): gentle hillslope | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.976 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes ____	No **X**

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

Remarks:
Plot 17 is located approximately 20 feet southeast and 2 feet higher than Plot 16 (wetland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Lonicera involucrata*	40%	Yes	FAC
2. *Sambucus racemosa*	30%	Yes	FACU
3.			
4.			
5.			
Total Cover:	70%		
Herb Stratum (Plot size: 5 ft.)			
1. *Holcus lanatus*	30%	Yes	FAC
2. *Cardamine hirsuta*	20%	Yes	FACU
3. *Epilobium ciliatum*	5%	No	FACW
4. *Digitalis purpurea*	3%	No	FACU
5.			
6.			
7.			
8.			
Total Cover:	58%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	42%		

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Bareground in herb stratum is covered by moss.

SOIL

Sampling Point: **17**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-14	10YR3/2	95	10YR4/4	5	C	M	silt loam	
14-24	10YR3/1	85	10YR4/4	15	C	M	silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	
Water Table Present?	Yes ___	No X	Depth (inches):	>24"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>24"

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

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

Remarks:

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/20/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 18

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.974 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: PEMCS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:
Plot 18 is located in a low-elevation depression, below the calculated highest measured tide. It is approximately 30 feet north and 3 feet lower than Plot 19 (upland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Salix hookeriana*	10%	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	10%		
Herb Stratum (Plot size: 5 ft.)			
1. *Juncus balticus*	95%	Yes	FACW
2. *Cardamine hirsuta*	2%	No	FACU
3. *Epilobium ciliatum*	1%	No	FACW
4. *Lotus corniculatus*	1%	No	FAC
5.			
6.			
7.			
8.			
Total Cover:	99%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	1%		

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: **18**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-4	10YR2/1	100	no redox				loamy sand	
4-24	10YR3/1	95	10YR4/4	5	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	X	No	___	Depth (inches): 6.5"
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 5.5"

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

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

Remarks:

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/20/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 19

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.974 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Plot 19 is located on a hillslope in close proximity to the tidal waters boundary. It is approximately 30 feet south and 3 feet higher than Plot 18 (wetland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Rubus armeniacus*	3%	No	FACU
2. *Malus fusca*	2%	No	FACW
3. *Lonicera involucrata*	1%	No	FAC
4.			
5.			
Total Cover:	6%		
Herb Stratum (Plot size: 5 ft.)			
1. *Ammophila breviligulata*	62%	Yes	UPL
2. *Holcus lanatus*	10%	No	FAC
3. *Rumex acetosella*	5%	No	FACU
4. *Digitalis purpurea*	2%	No	FACU
5. *Lotus corniculatus*	1%	No	FAC
6.			
7.			
8.			
Total Cover:	80%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	20%		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Shrub species had very low cover (<5%) and were not considered to be dominant.

SOIL

Sampling Point: **19**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-1	10YR2/2	100	no redox				loamy sand	
1-24	10YR3/2	100	no redox				sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):	
Water Table Present?	Yes _____	No X	Depth (inches):	>24"
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches):	>24"

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

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

Remarks:
Soils were noted to be slightly moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/25/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **20**

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): gentle hillslope | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.976 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

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

Remarks:
Plot 20 is located on a gentle hillslope approximately 40 feet southwest and 1 foot lower than Plot 21 (upland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Lonicera involucrata*	40%	Yes	FAC
2. *Sambucus racemosa*	5%	No	FACU
3.			
4.			
5.			
Total Cover:	45%		
Herb Stratum (Plot size: 5 ft.)			
1. *Iris pseudacorus*	50%	Yes	OBL
2. *Agrostis species*	30%	Yes	FAC ?
3. *Holcus lanatus*	10%	No	FAC
4. *Cardamine hirsuta*	4%	No	FACU
5. *Epilobium ciliatum*	1%	No	FACW
6.			
7.			
8.			
Total Cover:	95%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	5%		

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Agrostis species was assumed to be FAC or wetter.

SOIL

Sampling Point: **20**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-6	10YR2/2	97	7.5YR4/6	3	C	M	silt loam	
6-24	10YR3/2	85	7.5YR4/6	15	C	M	silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- X FAC-Neutral Test (D5)
- X Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	
Water Table Present?	Yes ___	No X	Depth (inches):	>24"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>24"

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

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

Remarks:
We assume that the vegetation hummocks observed were a result of Raised Ant Mounds (D6), but they could also be a result of Frost-Heave (D4). Soils were noted to be moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/25/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **21**

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.976 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes ____	No **X**

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

Remarks:
Plot 21 is located approximately 40 feet northeast and 1 foot higher than Plot 20 (wetland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Sambucus racemosa*	70%	Yes	FACU
2. *Lonicera involucrata*	10%	No	FAC
3.			
4.			
5.			
Total Cover:	80%		
Herb Stratum (Plot size: 5 ft.)			
1. *Cardamine hirsuta*	55%	Yes	FACU
2. *Agrostis species*	15%	No	FAC ?
3. *Holcus lanatus*	10%	No	FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	80%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	20%		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Agrostis species was assumed to be FAC or wetter. Most of the barground areas within the herb stratum were covered by moss.

SOIL

Sampling Point: **21**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-4	10YR2/2	100	no redox				silt loam	
4-26	10YR3/2	93	7.5YR4/6	7	C	M	silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):	_____
Water Table Present?	Yes _____	No X	Depth (inches):	>26"
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches):	>26"

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

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

Remarks:
Soils were noted to be moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/25/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 22

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.974 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: PEMCS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:
Plot 22 is located within a high(er) elevation gentle depression. It is approximately 30 feet southeast and 4 feet lower than Plot 23 (upland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lucida (lasiandra)*	40%	Yes	FACW
2. *Alnus rubra*	5%	No	FAC
3.			
4.			
Total Cover:	45%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Rubus spectabilis*	20%	Yes	FAC
2. *Sambucus racemosa*	10%	Yes	FACU
3. *Rubus armeniacus*	5%	No	FACU
4.			
5.			
Total Cover:	35%		
Herb Stratum (Plot size: 5 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	0%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	100%		

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Bareground in herb stratum covered by leaf debris.

SOIL

Sampling Point: **22**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-2	10YR2/2	100	no redox				silt loam	
2-10	10YR3/1	85	7.5YR4/6	15	C	M	silt loam	
10-26	10YR3/1	80	7.5YR4/6	20	C	M	silt loam	some sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___
Water Table Present?	Yes X	No ___	Depth (inches):	4.5"
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	1"

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

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

Remarks:

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/25/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **23**

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): convex | Slope (%): 3

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.974 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: PEMCS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**	
Hydric Soil Present?	Yes ____	No **X**	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Wetland Hydrology Present?	Yes ____	No **X**	

Remarks:
Plot 23 is located on a hillslope which appears to be a historic artificial berm. It is approximatley 30 feet northwest and 4 feet higher than Plot 22 (wetland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lucida (lasiandra)*	50%	Yes	FACW
2.			
3.			
4.			
Total Cover:	50%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Sambucus racemosa*	15%	Yes	FACU
2. *Ribes lacustre*	5%	No	FAC
3. *Rubus armeniacus*	5%	No	FACU
4. *Ilex aquifolium*	1%	No	FACU
5.			
Total Cover:	26%		
Herb Stratum (Plot size: 5 ft.)			
1. *Digitalis purpurea*	20%	Yes	FACU
2. *Cardamine hirsuta*	15%	Yes	FACU
3. *Agrostis species*	10%	No	FAC ?
4. *Holcus lanatus*	5%	No	FAC
5. *Hypericum androsaemum*	5%	No	UPL
6.			
7.			
8.			
Total Cover:	55%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	45%		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Agrostis species was assumed to be FAC or wetter. The ID is tentative on the *H. androsaemum.*

SOIL

Sampling Point: **23**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-24	10YR3/2	97	10YR3/6	3	C	M	silt loam	some sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	
Water Table Present?	Yes ___	No X	Depth (inches):	>24"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>24"

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

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

Remarks:
Soils were noted to be slightly moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/25/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **24**

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.973 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: PEMCS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

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

Remarks:
Plot 24 is located approximately 15 feet south of the northshore top-of-bank. It is approximately 25 feet northwest and 6 inches higher than Plot 25 (wetland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Sambucus racemosa*	45%	Yes	FACU
2. *Lonicera involucrata*	10%	No	FAC
3. *Rubus armeniacus*	10%	No	FACU
4. *Rubus spectabilis*	10%	No	FAC
5. *Salix hookeriana*	10%	No	FACW
Total Cover:	85%		
Herb Stratum (Plot size: 5 ft.)			
1. *Cardamine hirsuta*	10%	Yes	FACU
2. *Agrostis species*	1%	No	FAC ?
3. *Epilobium ciliatum*	1%	No	FACW
4. *Digitalis purpurea*	1%	No	FACU
5. *Juncus effusus*	1%	No	FACW
6.			
7.			
8.			
Total Cover:	14%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	86%		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Agrostis species was assumed to be FAC or wetter.

SOIL

Sampling Point: **24**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-14	10YR3/3	97	10YR3/6	3	C	M	sand	
14-27	10YR3/1	85	5YR4/6	15	C	M	silt loam	with some sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	
Water Table Present?	Yes ___	No X	Depth (inches):	>27"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>27"

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

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

Remarks:
Soils were noted to be moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/25/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **25**

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.973 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: PEMCS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

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

Remarks:
Plot 25 is located approximately 25 feet southeast and 6 inches lower than Plot 24 (upland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Lonicera involucrata*	60%	Yes	FAC
2. *Rubus spectabilis*	10%	No	FAC
3. *Sambucus racemosa*	10%	No	FACU
4.			
5.			
Total Cover:	80%		
Herb Stratum (Plot size: 5 ft.)			
1. *Agrostis species*	40%	Yes	FAC ?
2. *Juncus effusus*	30%	Yes	FACW
3. *Holcus lanatus*	5%	No	FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	75%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	25%		

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Agrostis species was assumed to be FAC or wetter.

SOIL

Sampling Point: **25**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-8	10YR3/2	90	10YR4/6	10	C	M	silt loam	
8-26	10YR3/2	85	10YR4/6	15	C	M	loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	X	No	___	Depth (inches): 8"
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 6"

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

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

Remarks:

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/25/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **26**

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.972 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: PEMCS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

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

Remarks:
Plot 26 is located approximately 55 feet southeast and 1 foot lower than Plot 27 (upland). It was in close proximity to an unimproved pedestrian trail.

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Lonicera involucrata*	85%	Yes	FAC
2. *Salix hookeriana*	2%	No	FACW
3. *Rubus armeniacus*	1%	No	FACU
4. *Sambucus racemosa*	1%	No	FACU
5.			
Total Cover:	89%		
Herb Stratum (Plot size: 5 ft.)			
1. *Poa species*	30%	Yes	FAC ?
2. *Holcus lanatus*	20%	Yes	FAC
3. *Juncus effusus*	20%	Yes	FACW
4. *Lotus corniculatus*	5%	No	FAC
5. *Agrostis species*	4%	No	FAC ?
6. *Epilobium ciliatum*	1%	No	FACW
7.			
8.			
Total Cover:	80%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	20%		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Poa and *Agrostis* species were assumed to be FAC or wetter.

SOIL

Sampling Point: **26**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-4	10YR3/2	97	10YR3/6	3	C	M	silt loam	with some sand
4-8	10YR3/2	95	10YR4/6	5	C	M	sand	
8-24	10YR3/1	85	7.5YR4/6	15	C	M	silt loam	with some sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	X	No	___	Depth (inches): 10.5"
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 8"

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

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

Remarks:

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/25/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **27**

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.972 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: PEMCS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes ____	No **X**

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

Remarks:
Plot 27 is located approximately 55 feet northwest and 1 foot higher than Plot 26 (wetland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Salix hookeriana*	40%	Yes	FACW
2. *Sambucus racemosa*	25%	Yes	FACU
3. *Rubus armeniacus*	20%	Yes	FACU
4. *Lonicera involucrata*	15%	No	FAC
5.			
Total Cover:	100%		
Herb Stratum (Plot size: 5 ft.)			
1. *Cardamine hirsuta*	5%	Yes	FACU
2. *Agrostis species*	1%	No	FAC ?
3. *Polystichum munitum*	1%	No	FACU
4.			
5.			
6.			
7.			
8.			
Total Cover:	7%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	93%		

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Agrostis species was assumed to be FAC or wetter.

SOIL

Sampling Point: **27**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-3	10YR2/2	100	no redox				silt loam	
3-22	10YR3/2	98	7.5YR4/6	2	C	M	loamy sand	
22-26	10YR3/2	95	7.5YR4/6	5	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___
Water Table Present?	Yes ___	No X	Depth (inches):	>26"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>26"

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

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

Remarks:
Soils were noted to be moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/25/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **28**

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.971 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: PEMCS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

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

Remarks:
Plot 28 is located approximately 12 feet southwest and 3 feet lower than Plot 29 (upland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	5%	Yes	FAC
2.			
3.			
4.			
Total Cover:	5%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Lonicera involucrata*	20%	Yes	FAC
2. *Sambucus racemosa*	15%	Yes	FACU
3. *Rubus armeniacus*	1%	No	FACU
4.			
5.			
Total Cover:	36%		
Herb Stratum (Plot size: 5 ft.)			
1. *Holcus lanatus*	45%	Yes	FAC
2. *Juncus effusus*	35%	Yes	FACW
3. *Agrostis species*	15%	No	FAC ?
4. *Cardamine hirsuta*	5%	No	FACU
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Agrostis species was assumed to be FAC or wetter.

SOIL

Sampling Point: **28**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-6	10YR3/2	90	7.5YR4/6	10	C	5%M,5%RC	silty clay loam	ORC
6-14	10YR3/2	90	7.5YR4/6	10	C	M	loamy sand	
14-24	10YR3/2	95	7.5YR4/6	5	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	X	No	___	Depth (inches): 21"
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 20"

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

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

Remarks:
Oxidized Rhizospheres along Living Roots (C3) were observed between 0 to 6 inches in depth.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/25/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **29**

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.971 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: PEMCS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

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

Remarks:
Plot 29 is located on a berm approximately 12 feet northeast and 3 feet higher than Plot 28 (wetland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Rubus armeniacus*	30%	Yes	FACU
2.			
3.			
4.			
5.			
Total Cover:	30%		
Herb Stratum (Plot size: 5 ft.)			
1. *Digitalis purpurea*	30%	Yes	FACU
2. *Schedonorus arundinaceus*	30%	Yes	FAC
3. *Agrostis species*	25%	Yes	FAC ?
4. *Holcus lanatus*	15%	No	FAC
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Agrostis species was assumed to be FAC or wetter.

SOIL

Sampling Point: **29**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-25	10YR3/3	100	no redox				sandy loam	
25-28	10YR3/3	100	no redox				sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):	
Water Table Present?	Yes _____	No X	Depth (inches):	>28"
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches):	>28"

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

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

Remarks:

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/26/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **30**

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.971 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

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

Remarks:
Plot 30 is located at the eastern end of Wetland F, approximately 20 feet south and 1 foot lower than Plot 31 (upland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Lonicera involucrata*	3%	No	FAC
2.			
3.			
4.			
5.			
Total Cover:	3%		
Herb Stratum (Plot size: 5 ft.)			
1. *Agrostis species*	50%	Yes	FAC ?
2. *Juncus effusus*	35%	Yes	FACW
3. *Holcus lanatus*	10%	No	FAC
4. *Digitalis purpurea*	5%	No	FACU
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Agrostis species was assumed to be FAC or wetter. *L. involucrata* had low cover and was not considered dominant.

SOIL

Sampling Point: **30**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-8	10YR2/2	95	7.5YR4/6	5	C	2%M,3%RC	sandy loam	ORC
8-24	10YR3/2	90	5YR3/4	10	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- X FAC-Neutral Test (D5)
- X Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___
Water Table Present?	Yes X	No ___	Depth (inches):	18"
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	16"

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

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

Remarks:
We assume that the vegetation hummocks observed were a result of Raised Ant Mounds (D6), but they could also be a result of Frost-Heave (D4). Oxidized Rhizospheres along Living Roots (C3) were observed between 0 and 8 inches in depth.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/26/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 31

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.971 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Plot 31 is located approximately 20 feet north and 1 foot higher than Plot 30 (wetland).

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 50 ft.)			
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Cytisus scoparius*	25%	Yes	UPL
2.			
3.			
4.			
5.			
Total Cover:	25%		
Herb Stratum (Plot size: 5 ft.)			
1. *Digitalis purpurea*	30%	Yes	FACU
2. *Holcus lanatus*	30%	Yes	FAC
3. *Agrostis species*	20%	Yes	FAC ?
4. *Equisetum hyemale*	20%	Yes	FACW
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Agrostis species was assumed to be FAC or wetter.

SOIL

Sampling Point: **31**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-3	10YR2/2	100	no redox				sandy loam	
3-12	10YR3/3	98	10YR3/6	2	C	M	loamy sand	
12-24	10YR3/2	95	10YR4/6	5	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	
Water Table Present?	Yes ___	No X	Depth (inches):	>24"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>24"

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

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

Remarks:
Soils were noted to be moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/26/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 32

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.971 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: PEMCS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:
Plot 32 is located in a slight depression approximately 10 feet north of the southern shoreline top-of-bank.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 50 ft.)			
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Salix hookeriana*	20%	Yes	FACW
2. *Sambucus racemosa*	10%	Yes	FACU
3.			
4.			
5.			
Total Cover:	30%		
Herb Stratum (Plot size: 5 ft.)			
1. *Holcus lanatus*	30%	Yes	FAC
2. *Juncus effusus*	25%	Yes	FACW
3. *Iris pseudacorus*	20%	Yes	OBL
4. *Agrostis species*	5%	No	FAC ?
5. *Digitalis purpurea*	5%	No	FACU
6.			
7.			
8.			
Total Cover:	85%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	15%		

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Agrostis species was assumed to be FAC or wetter.

SOIL

Sampling Point: **32**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-2	10YR2/2	100	no redox				sandy loam	
2-18	10YR3/2	80	5YR3/4	20	C	15%M,5%RC	sand	ORC
18-26	10YR3/1	70	5YR3/4	30	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___
Water Table Present?	Yes ___	No X	Depth (inches):	>26"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>26"

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

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

Remarks:
Oxidized Rhizospheres along Living Roots (C3) were observed from 2 to 18 inches in depth. Soils were noted to be very moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/26/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 33

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.973 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: PEMCS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:
Plot 33 is located approximately 5 feet north of the southern shoreline top-of-bank.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 50 ft.)			
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Sambucus racemosa*	20%	Yes	FACU
2. *Lonicera involucrata*	5%	Yes	FAC
3.			
4.			
5.			
Total Cover:	25%		
Herb Stratum (Plot size: 5 ft.)			
1. *Iris pseudacorus*	30%	Yes	OBL
2. *Juncus effusus*	30%	Yes	FACW
3. *Lotus corniculatus*	20%	Yes	FAC
4. *Agrostis species*	14%	No	FAC ?
5. *Holcus lanatus*	5%	No	FAC
6. *Cardamine hirsuta*	1%	No	FACU
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Agrostis species was assumed to be FAC or wetter.

SOIL

Sampling Point: **33**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-2	10YR2/2	100	no redox				sandy loam	
2-10	10YR4/2	93	7.5YR4/6	7	C	5%M,2%RC	silty clay loam	ORC
10-24	10YR4/1	85	7.5YR4/6	15	C	M	silty clay loam	with some sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___
Water Table Present?	Yes ___	No X	Depth (inches):	>24"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>24"

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

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

Remarks:
Oxidized Rhizospheres along Living Roots (C3) observed between 2 and 10 inches in depth.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/26/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 34

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): gentle hillslope | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.969 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation Yes ,Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____,Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Plot 34 is located in an un-vegetated area (sand) that was historically used as a dredge material depositional area, and is now used by Caspian terns for nesting habitat. It is located near the top of this un-vegetated slope.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 50 ft.)			
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 5 ft.)			
1. *Poa annua*	1%	No	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	1%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		

% Bare Ground in Herb Stratum 99%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Area is mostly un-vegetated sand. Vegetation is likely being heavily grazed by birds.

SOIL

Sampling Point: **34**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-12	10YR3/2	99	10YR4/6	1	C	M	sand	
12-30	10YR3/1	80	7.5YR4/6	20	C	M	fine sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:
Sand is very compacted. Many shells and bones on surface from bird use.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	
Water Table Present?	Yes ___	No X	Depth (inches):	>30"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>30"

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

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

Remarks:
Soils were noted to be moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/26/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 35

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): gentle hillslope | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.968 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: E2USPS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation Yes ,Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____,Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Plot 35 is located in an un-vegetated area (sand) that was historically used as a dredge material depositional area, and is now used by Caspian terns for nesting habitat. It is located near the middle of this un-vegetated slope, approximately 6 feet lower than Plot 34.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 50 ft.)			
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 5 ft.)			
1. *Poa annua*	1%	No	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	1%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum	99%		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Area is mostly un-vegetated sand. Vegetation is likely being heavily grazed by birds.

SOIL

Sampling Point: **35**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-18	10YR3/2	99	10YR3/4	1	C	M	sand	
18-29	10YR3/2	95	10YR4/4	5	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:
Many shells and bones on surface from bird use.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):	
Water Table Present?	Yes _____	No X	Depth (inches):	>29"
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches):	>29"

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

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

Remarks:
Soils were noted to be moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/26/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 36

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.264 | Long: -123.968 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: E2USNS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation Yes ,Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____,Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Plot 36 is located in an un-vegetated area (sand) that was historically used as a dredge material depositional area, and is now used by Caspian terns for nesting habitat. It is located near the bottom of this un-vegetated slope, approximately 2 feet lower than Plot 35. Plot 36 is located slightly lower than the calculated highest measured tide elevation.

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 5 ft.)			
1. *Poa annua*	1%	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	1%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	99%		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Area is mostly un-vegetated sand. Vegetation is likely being heavily grazed by birds.

SOIL

Sampling Point: **36**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-22	10YR3/2	98	10YR3/4	2	C	M	sand	
22-31	10YR3/2	99	10YR3/4	1	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	
Water Table Present?	Yes ___	No X	Depth (inches):	>31"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>31"

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

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

Remarks:
Soils were noted to be moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/26/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 37

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.974 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: PEMCS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Plot 37 is located withiin a gentle depression. It is approximately 20 feet northwest and 2 feet lower than Plot 38 (upland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Sambucus racemosa*	40%	Yes	FACU
2. *Lonicera involucrata*	15%	Yes	FAC
3. *Salix hookeriana*	5%	No	FACW
4.			
5.			
Total Cover:	60%		
Herb Stratum (Plot size: 5 ft.)			
1. *Ranunculus repens*	55%	Yes	FAC
2. *Cardamine hirsuta*	15%	No	FACU
3. *Digitalis purpurea*	15%	No	FACU
4. *Cirsium vulgare*	2%	No	FACU
5.			
6.			
7.			
8.			
Total Cover:	87%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	13%		

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: **37**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-2	10YR2/2	100	no redox				silt loam	
2-24	10YR3/1	85	5YR4/6	15	C	10%M, 5%RC	silty clay loam	ORC

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___
Water Table Present?	Yes ___	No X	Depth (inches):	>24"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>24"

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

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

Remarks:
Oxidized Rhizospheres along Living Roots (C3) were observed between 2 to 24 inches in depth. Soils were noted to be very moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/26/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 38

Investigator(s): C. Jonas Moiel, Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): hillslope (artificial berm) | Local relief (concave, convex, none): none | Slope (%): 3

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.974 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: PEMCS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Plot 38 is located at the base of a hillslope (historic berm). It is approximately 20 feet southeast and 2 feet higher than Plot 37 (wetland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Sambucus racemosa*	40%	Yes	FACU
2. *Salix hookeriana*	25%	Yes	FACW
3. *Rubus armeniacus*	5%	No	FACU
4. *Rubus spectabilis*	5%	No	FAC
5.			
Total Cover:	75%		
Herb Stratum (Plot size: 5 ft.)			
1. *Cardamine hirsuta*	10%	Yes	FACU
2. *Rubus ursinus*	5%	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	15%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	85%		

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: **38**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-6	10YR2/2	100	no redox				silt loam	some sand
6-24	10YR3/2	90	7.5YR4/6	10	C	M	silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___
Water Table Present?	Yes ___	No X	Depth (inches):	>24"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>24"

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

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

Remarks:
Soils were noted to be slightly moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/28/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 39

Investigator(s): Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): low elevation bench | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.983 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Plot 39 is located on a low elevation bench, below the calculated highest measured tide elevation.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 50 ft.)			
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 5 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	0%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	100%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
No vegetation present.

SOIL

Sampling Point: **39**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-4	10YR2/1	100	no redox				sand	
4-13	10YR3/2	100	no redox				sand	*some organic mat.
13-24	10YR3/2	99	7.5YR4/6	1	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

*Some undecomposed small-wood material was observed between 4 to 8 inches in depth.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	
Water Table Present?	Yes ___	No X	Depth (inches):	>24"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>24"

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

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

Remarks:

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/28/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **40**

Investigator(s): Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): low elevation bench | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.987 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes ____	No **X**

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

Remarks:
Plot 40 is located on a low elevation bench, below the calculated highest measured tide elevation.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 50 ft.)			
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Rubus armeniacus*	1%	No	FACU
2. *Salix hookeriana*	<1%	No	FACW
3.			
4.			
5.			
Total Cover:	1%		
Herb Stratum (Plot size: 5 ft.)			
1. *Senecio vulgaris*	6%	Yes	FACU
2. *Poa annua*	3%	No	FAC
3. *Agrostis species*	1%	No	FAC ?
4. *Cardamine hirsuta*	1%	No	FACU
5. *Sedum or Rhodiola species*	1%	No	FACU to UPL
6.			
7.			
8.			
Total Cover:	12%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	88%		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Agrostis species was assumed to be FAC or wetter. Poa annua was not considered a dominant because it had low cover (<5%).

SOIL

Sampling Point: **40**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-5	10YR3/2	100	no redox				sand	
5-12	10YR3/2	98	7.5YR5/6	2	C	M	sand	
12-24	10YR3/2	99	7.5YR5/6	1	C	M	loamy sand	*some wood mat.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:
*Some undecomposed small-wood material was observed between 12 to 20 inches in depth.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___
Water Table Present?	Yes ___	No X	Depth (inches):	>24"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>24"

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

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

Remarks:
Soils were noted to be moist at the time of sampling.

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/28/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 41

Investigator(s): Jeff Handley | Section, Township, Range: T9N R11W

Landform (hillslope, terrace, etc.): gentle hillslope | Local relief (concave, convex, none): convex | Slope (%): 3

Subregion (LRR): LRR A | Lat: 46.263 | Long: -123.988 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Plot 41 is located on a gentle hillslope, slightly higher in elevation than the calculated highest measured tide.

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Rubus armeniacus*	1%	No	FACU
2.			
3.			
4.			
5.			
Total Cover:	1%		
Herb Stratum (Plot size: 5 ft.)			
1. *Poa annua*	25%	Yes	FAC
2. *Senecio vulgaris*	1%	No	FACU
3. *Taraxacum officinale*	1%	No	FACU
4.			
5.			
6.			
7.			
8.			
Total Cover:	27%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	73%		

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Rubus armeniacus had low cover and was not considered to be dominant. Some moss cover was noted in the herbaceous layer.

SOIL

Sampling Point: **41**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-2	10YR3/2	100	no redox				sand	
2-6	10YR3/2	98	7.5YR4/6	2	C	M	loamy sand	
6-24	10YR3/2	100	no redox				sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	
Water Table Present?	Yes ___	No X	Depth (inches):	>24"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>24"

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

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

Remarks:
Soils were noted to be moist during the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/28/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: 42

Investigator(s): Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.991 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: E1UBL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ____	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Plot 42 is located on a gentle hillslope near the top of western jetty.

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0%		
Herb Stratum (Plot size: 5 ft.)			
1. *Poa annua*	60%	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	60%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	40%		

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: **42**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-13	10YR3/2	100	no redox				sand	*refusal at 13"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:
*Auger refusal at 13 inches likely due to buried rock (rip-rap). Some partially decomposed wood was noted throughout the soil profile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	
Water Table Present?	Yes ___	No X	Depth (inches):	>13"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>13"

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

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

Remarks:
Soils were noted to be moist at the time of sampling.

Data entered by: CJM Data checked by: JAH

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

Project/Site: East Sand Island | City/County: Clatsop | Sampling Date: 2/28/2014

Applicant/Owner: U.S. Army Corps of Engineers | State: Oregon | Sampling Point: **43**

Investigator(s): Jeff Handley | Section, Township, Range: T9N R11W

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

Subregion (LRR): LRR A | Lat: 46.262 | Long: -123.979 | Datum: NAD 83 UTM 10N

Soil Map Unit Name: Tropopsamments, 0-15% slopes | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No ____
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

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

Remarks:
Plot 43 is located approximately 25 feet southwest and 4 feet higher than Plot 11 (wetland).

VEGETATION

Tree Stratum (Plot size: 50 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0%		
Sapling/Shrub Stratum (Plot size: 25 ft.)			
1. *Sambucus racemosa*	35%	Yes	FACU
2. *Rubus armeniacus*	5%	No	FACU
3.			
4.			
5.			
Total Cover:	40%		
Herb Stratum (Plot size: 5 ft.)			
1. *Poa species*	63%	Yes	FAC ?
2. *Holcus lanatus*	20%	Yes	FAC
3. *Bromus species*	15%	No	FAC to UPL
4. *Cardamine hirsuta*	1%	No	FACU
5. *Epilobium ciliatum*	1%	No	FACW
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum (Plot Size: 5 ft.)			
1.			
2.			
Total Cover:	0%		
% Bare Ground in Herb Stratum	0%		

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:
Poa species was assumed to be FAC or wetter.

SOIL

Sampling Point: **43**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc2	Texture	Remarks
0-2	10YR2/2	100	no redox				loamy sand	
2-24	10YR3/2	99	7.5YR3/4	1	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**NW coast**)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Frost-Heave Hummocks (D4)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):	
Water Table Present?	Yes _____	No X	Depth (inches):	>24"
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches):	>24"

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

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

Remarks:
Soils were noted to be moist at the time of sampling.

APPENDIX C

Ground-Level Color Photographs

PP1 NW: Displays wood debris accumulation near tidal waters boundary.

PP1 SE: Displays wood debris and vegetation near tidal waters boundary.

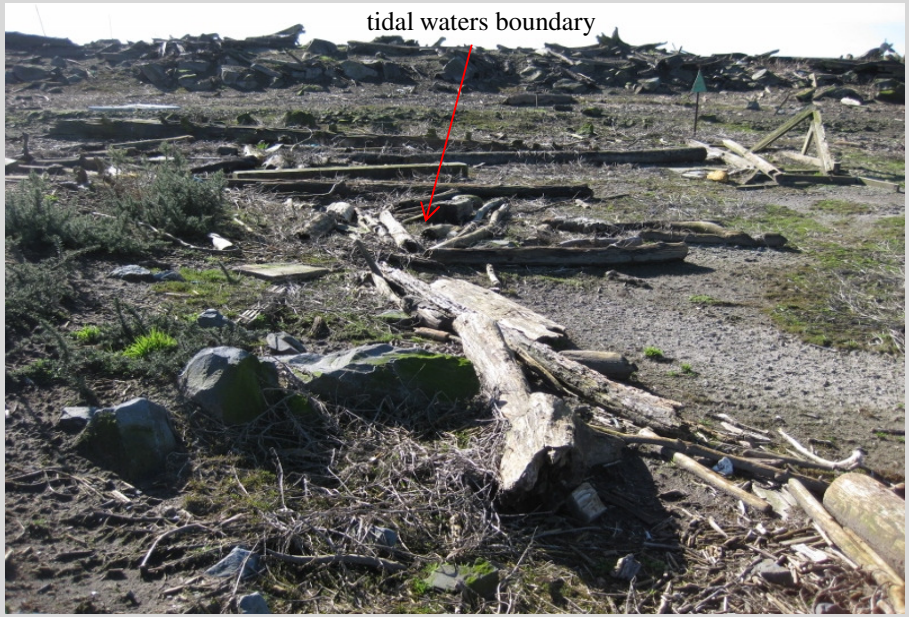
PP2 NW: Overview of western end of island and large angular rock dike.

PP2 SE: Displays wood debris accumulation near tidal waters boundary.

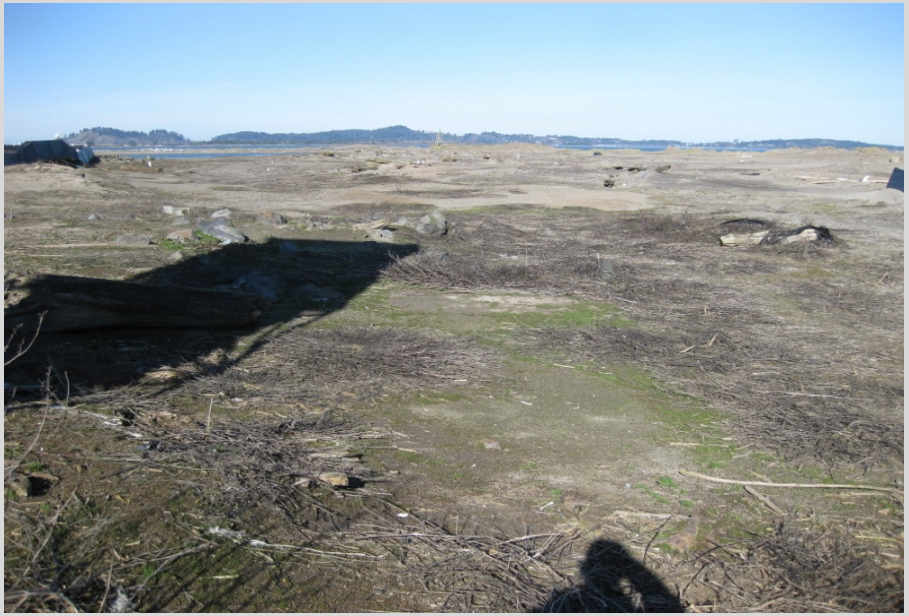
PP3 NW: Displays shoreline slightly lower than tidal waters boundary.

PP3 E: Displays shoreline slightly lower in elevation than tidal waters boundary.

PP4 N: Displays tidally inundated area; photo taken from tidal waters boundary.



PP4 S: Displays debris at tidal waters boundary and a rock dike in the distance.



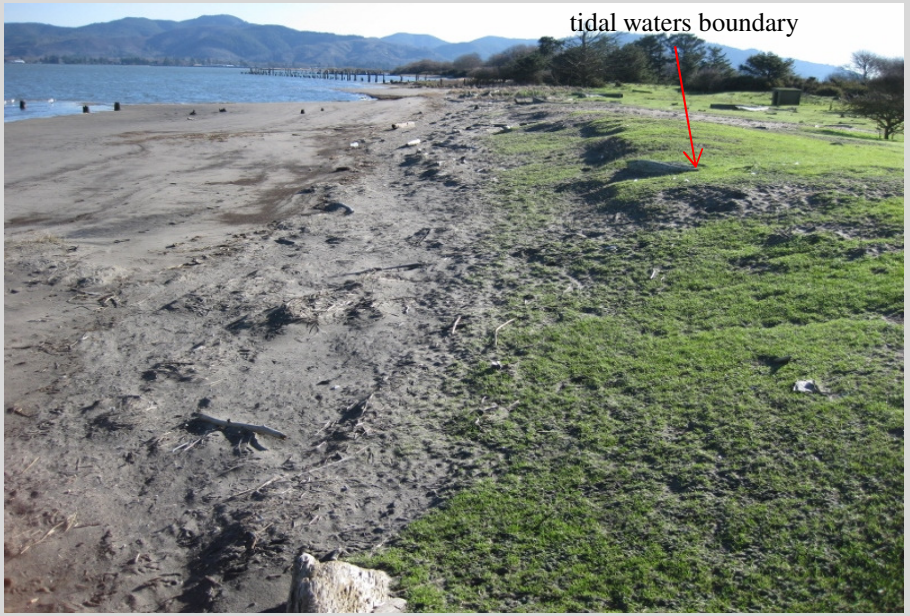
PP5 NW: Displays an area below the tidal waters boundary.

PP5 E: Displays an area below tidal waters boundary and a bird hazing tunnel.

PP6 NW: Displays large wood accumulation near tidal waters boundary.

PP6 SE: Displays large wood accumulation near tidal waters boundary.

PP7 E: Displays N shoreline from tidal waters boundary. Hazing tunnel in view.



PP8 E: Displays grass (*Poa annua*) near tidal waters boundary.

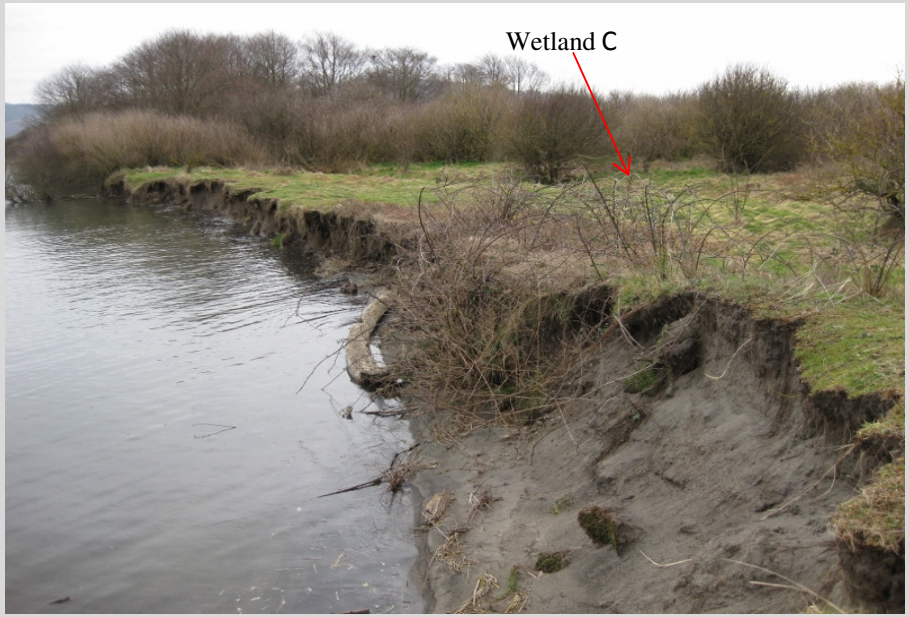
PP9 NW: Displays large wood accumulation near tidal waters boundary.

PP9 SE: Displays large wood accumulation near tidal waters boundary.

PP10 E: Displays a portion of Wetland A in close proximity to Data Plot 11.

PP11 NE: Displays sparse emergent vegetation in tidal Wetland B.

PP12 NW: Displays Wetland C; yellow iris, black twinberry and red elderberry.



PP13 SE: Displays an area with recent erosion and Wetland C in the distance.

PP14 NE: Displays Wetland C, photo taken from the tidal waters boundary.

PP15 NE: Displays upland plant community of red elderberry with moss layer.

PP16 SW: Displays UPL grass dominated area below tidal waters boundary.

PP17 W: Displays Wetland E and southern shoreline.

PP18 E: Displays soft rush and willows within Wetland F; near Data Plot 22.

PP19 W: Displays southern shoreline and Wetland F.

PP19 E: Displays southern shoreline and Wetland F.

PP20 NW: Displays Wetland F boundary in vicinity of Data Plots 26 and 27.

PP21 N: Overview of typical plant community found within Wetland F.

PP22 NW: Displays Wetland F in the vicinity of Data Plots 28 and 29.

PP23 SW: Displays Wetland F and an area along recently eroded S shoreline.

PP24 SW: Overview of central portion of ESI and eastern end of Wetland F.

PP24 E: Overview of eastern portion of ESI and Caspian tern nesting site.

PP25 E: Displays a recently eroded area of the southern shoreline.

PP26 NE: Overview of Caspian tern nesting site / historic dredge deposit site.

PP27 NE: Displays Wetland H; taken from an upland area near Data Plot 8.

PP28 NW: Displays Wetland H and the vicinity of Data Plot 7.

PP28 SE: Displays Wetland H and the vicinity of Data Plot 5.

PP29 SE: Displays large wood accumulation near the tidal waters boundary.

This displays the eastern portion of ESI during low-tide (no-photopoint assoc.).

APPENDIX D

Waters Comparison Transect Photographs

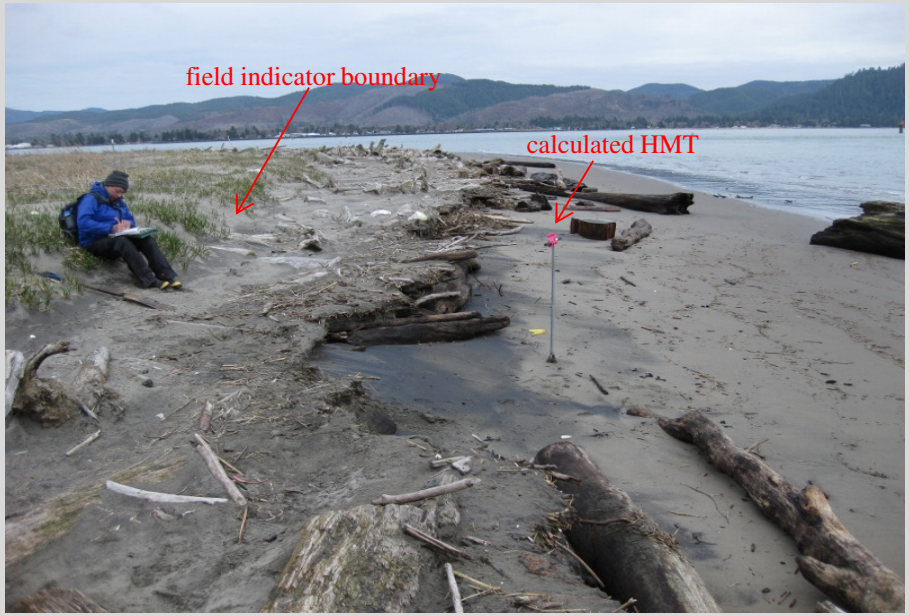
WT-1 NE: Calculated HMT and field indicator boundary are the same.

WT-2 NE: Calculated HMT is slightly higher than the field indicator boundary.

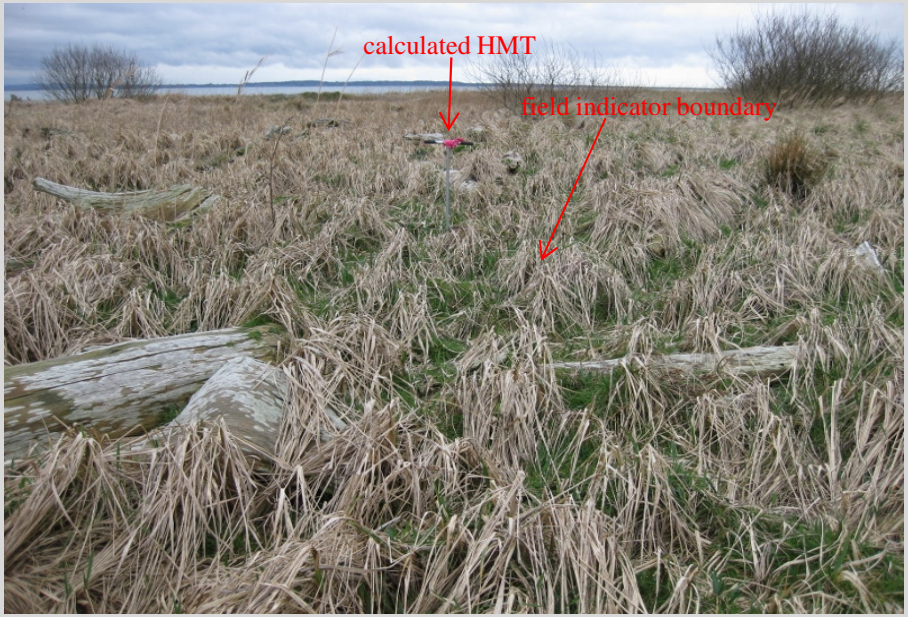
WT-3 E: Field indicator boundary is slightly higher than the calculated HMT.

WT-4 E: Field indicator boundary is slightly higher than the calculated HMT.

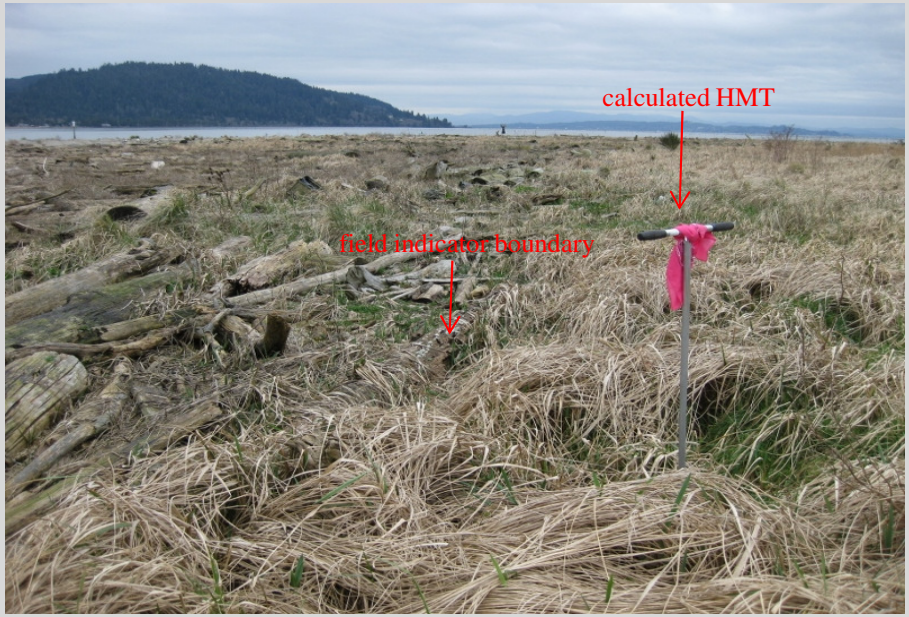
WT-5 NE: Field indicator boundary is higher than the calculated HMT.



WT-6 NE: Field indicator boundary is slightly higher than calculated HMT.



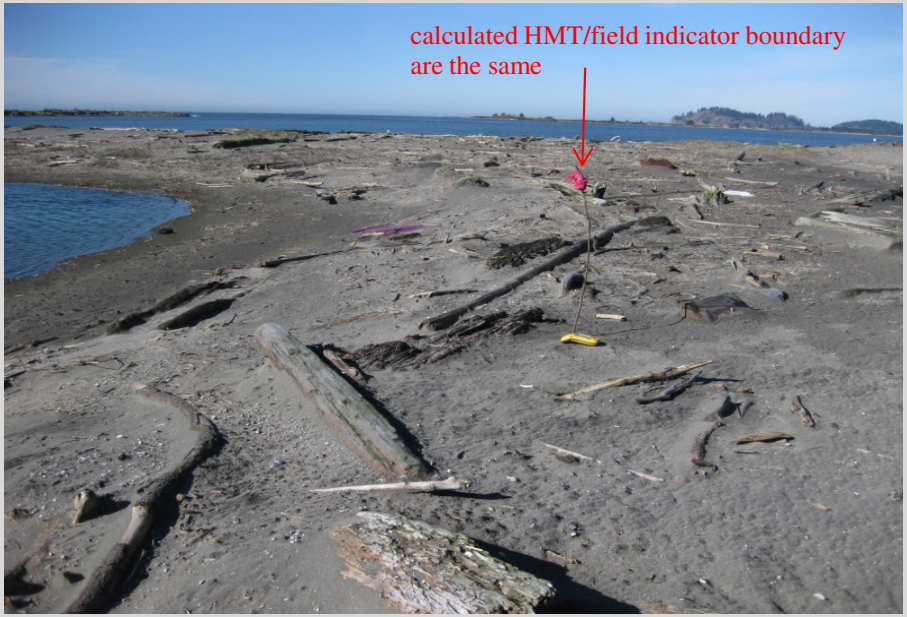
WT-7 S: Sparsely scattered wood made F.I. boundary difficult to determine.



WT-8 SE: Calculated HMT and field indicator boundary are close to the same.

WT-9 NE: Calculated HMT is slightly higher than the field indicator boundary.

WT-10 E: Calculated HMT and the field indicator boundary are the same.



WT-11 NW: Calculated HMT and field indicator boundary are the same.

WT-12 NW: Calculated HMT and field indicator boundary are the same.

APPENDIX E

List of Observed Plant Species

List of Observed Plant Species:

Common Name	Scientific Name	Wetland Indicator Status	Nativity	Where Found-Wetland (WL) or Upland (UP)
common yarrow	*Achillea millefolium*	FACU	native/non-native	UP
colonial bentgrass	*Agrostis capillaris*	FAC	non-native	WL, UP
bentgrass	*Agrostis species*	FAC ?	-	WL, UP
red alder	*Alnus rubra*	FAC	native	WL, UP
European beachgrass	*Ammophila arenaria*	FACU	non-native	UP
American beach grass	*Ammophila breviligulata*	UPL	native-eastern US	UP
Pacific silverweed	*Argentina anserina*	OBL	native	WL
brome	*Bromus species*	FAC to UPL	-	UP
hairy bittercress	*Cardamine hirsuta*	FACU	non-native	WL, UP
slough sedge	*Carex obnupta*	OBL	native	WL, UP
sticky chickweed	*Cerastium glomeratum*	FACU	non-native	WL, UP
bull thistle	*Cirsium vulgare*	FACU	non-native	WL, UP
miner's lettuce	*Claytonia perfoliata*	FAC	native	WL, UP
poison hemlock	*Conium maculatum*	FAC	non-native	UP
red-osier dogwood	*Cornus sericea (alba)*	FACW	native	WL
Scotch broom	*Cytisus scoparius*	UPL	non-native	UP
Queen Anne's lace	*Daucus carota*	FACU	non-native	UP
tufted hairgrass	*Deschampsia cespitosa*	FACW	native	WL, UP
foxglove	*Digitalis purpurea*	FACU	non-native	WL, UP
teasel	*Dipsacus fullonum*	FAC	non-native	WL, UP
Watson's willow-herb	*Epilobium ciliatum*	FACW	native	WL, UP
common scouring-rush	*Equisetum hyemale*	FACW	native	UP
filaree	*Erodium cicutarium*	UPL	non-native	UP
cascara	*Frangula purshiana*	FAC	native	WL
Oregon ash	*Fraxinus latifolia*	FACW	native	WL, UP
salal	*Gaultheria shallon*	FACU	native	UP
cow parsnip	*Heracleum maximum*	FAC	native	WL, UP
common velvetgrass	*Holcus lanatus*	FAC	non-native	WL, UP
tutsan	*Hypericum androsaemum*	UPL	non-native	UP
English holly	*Ilex aquifolium*	FACU	non-native	UP
yellow iris	*Iris pseudacorus*	OBL	non-native	WL
Baltic rush	*Juncus balticus*	FACW	native	WL
soft rush	*Juncus effusus*	FACW	native	WL, UP
red dead-nettle	*Lamium purpureum*	UPL	non-native	UP
American dunegrass	*Leymus mollis*	FACU	native	UP
black twinberry	*Lonicera involucrata*	FAC	native	WL, UP
birdsfoot-trefoil	*Lotus corniculatus*	FAC	non-native	WL, UP
lupine	*Lupinus species*	FAC to UPL	-	UP
western crabapple	*Malus fusca*	FACW	native	WL, UP
sweet-clover	*Melilotus officinalis*	FACU	non-native	UP
mint	*Mentha species*	OBL to FACW	-	WL
reed canarygrass	*Phalaris arundinacea*	FACW	*native**	WL
common reed	*Phragmites australis ssp. Americanus*	FACW	native	UP
Pacific ninebark	*Physocarpus capitatus*	FACW	native	WL
Sitka spruce	*Picea sitchensis*	FAC	native	UP
English plantain	*Plantago lanceolata*	FACU	non-native	UP
common plantain	*Plantago major*	FAC	non-native	UP

List of Observed Plant Species (continued):

Common Name	Scientific Name	Wetland Indicator Status	Nativity	Where Found- Wetland (WL) or Upland (UP)
plantain	*Plantago species*	OBL to UPL		UP
annual bluegrass	*Poa annua*	FAC	non-native	WL, UP
bluegrass	*Poa species*	FAC ?	-	WL, UP
western sword fern	*Polystichum munitum*	FACU	native	UP
black cottonwood	*Populus balsamifera*	FAC	native	WL
English laurel	*Prunus laurocerasus*	UPL	non-native	
creeping buttercup	*Ranunculus repens*	FAC	non-native	WL
Japanese knotweed	*Reynoutria japonica*	FACU	non-native	UP
prickly currant	*Ribes lacustre*	FAC	native	UP
Himalayan blackberry	*Rubus armeniacus*	FACU	non-native	WL, UP
evergreen blackberry	*Rubus laciniatus*	FACU	non-native	UP
salmonberry	*Rubus spectabilis*	FAC	native	WL, UP
Pacific blackberry	*Rubus ursinus*	FACU	native	UP
sheep sorrel	*Rumex acetosella*	FACU	non-native	UP
curly dock	*Rumex crispus*	FAC	non-native	WL, UP
Hooker willow	*Salix hookeriana*	FACW	native	WL, UP
Pacific willow	*Salix lucida (lasiandra)*	FACW	native	WL, UP
red elderberry	*Sambucus racemosa*	FACU	native	WL, UP
tall fescue	*Schedonorus arundinaceus*	FAC	non-native	UP
California figwort	*Scrophularia californica*	FAC	native	WL, UP
stonecrop	*Sedum or Rhodiola species*	FACU to UPL	-	UP
tansy ragwort	*Senecio jacobaea (Jacobaea vulgaris)*	FACU	non-native	WL, UP
common groundsel	*Senecio vulgaris*	FACU	non-native	UP
common chickweed	*Stellaria media*	FACU	non-native	UP
common snowberry	*Symphoricarpos albus*	FACU	native	UP
coastal tansy	*Tanacetum camphoratum*	UPL	native	UP
common dandelion	*Taraxacum officinale*	FACU	native/non-native	UP
western red cedar	*Thuja plicata*	FAC	native	UP
gorse	*Ulex europaeus*	FACU	non-native	UP
stinging nettle	*Urtica dioica*	FAC	native/non-native	WL
evergreen huckleberry	*Vaccinium ovatum*	FACU	native	UP
common mullein	*Verbascum thapsus*	FACU	non-native	UP
American speedwell	*Veronica americana*	OBL	native	WL
American vetch	*Vicia americana* (ID tentative)	FAC	native	WL

Notes: * **1)** Although the PLANTS database lists *Phalaris arundinacea* as "native", this is controversial and most jurisdictions consider this an invasive species in wetlands. **2) "**Upland" habitats on East Sand Island include some dunal areas below the "highest measured tide" and thus are also considered "waters". **3)** The Wetland Indicator Statuses (WIS) listed above are from the 2013 U.S. Army Corps of Engineers (Corps) NWPL Final Ratings for Western Mountains, Valleys and Coast, U.S. Army Corps Of Engineers, Cold Regions Research And Engineering Laboratory (CRREL). In most cases the nomenclature matches that from the Corps' list. A few names have been updated to match the USDA PLANTS database (http://plants.usda.gov/java/). In cases where the latest nomenclature is different than that listed in the new Corps WIS list (at the species level), the name used in the Corps' list, or closest synonomy is in parentheses. **4)** This list was compiled by Green Banks; we teamed with Forest Service botanists Scott Riley and Lynda Moore regarding the identification of a few species. **5)** Unidentified bentgrass (*Agrostis sp.*) or bluegrass (*Poa sp.*) in this part of Oregon are generally considered to be FAC (or wetter). **6)** Although the PLANTS database does not show *Scrophulaia californica* occuring in Oregon, numerous other sources including Hitchcock & Cronquist (1974) and Kozloff (2005) indicate that it is present in Oregon.

APPENDIX F

References

References

Adamus, Paul, Ph.D. Adamus Resource Assessment, Inc. 2006. Hydrogeomorphic (HGM) Assessment Guidebook for Tidal Wetlands of the Oregon Coast-Part 1: Rapid Assessment Method. produced by Coos Watershed Association, funded by U.S. Environmental Protection Agency Grant #CB9702800-1 to the Oregon Department of State Lands, Salem, OR.

Adamus, P.R. and D. Field. 2001. Guidebook for Hydrogeomorphic (HGM)–based Assessment of Oregon Wetland and Riparian Sites. I. Willamette Valley Ecoregion, Riverine Impounding and Slope/Flats Subclasses. Volume IA: Assessment Methods. Oregon Division of State Lands, Salem, OR.

Audubon Society of Portland. 2014. East Sand Island. On-line article, accessed in January 2014. URL: http://audubonportland.org/local-birding/iba/iba-map/eastsand

Bing Maps (Aerial Imagery). http://www.bing.com/maps. Photograph captured in 2011.

Clatsop County, Oregon. Tax lot map T9N R11W WM (October 21, 2013). Accessed online from Oregon Maps in January 2014 at URL http://www.ormap.net/index.cfm?opt=maplist

Cowardin, L.M., V. Carter, F.C. Golet and E.T LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service. FWS/OBS-79/31. December 1979. Reprinted 1992.

Darby, Melissa, MA. Archaeologist, Lower Columbia Research & Archaeology. 2014. Draft History of Sand Island. Prepared for the U.S. Army Corps of Engineers.

Google Earth. 2014. Source for on-line aerial photograph from 2012.

National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS). National Weather Service Forecast Office-Portland. Local daily and monthly data from the NWS Astoria, Oregon Weather Station. Accessed various dates in 2014. URL: http://www.nws.noaa.gov/climate/index.php?wfo=pqr

Munsell Color. 2009. Munsell Soil-Color Charts. 2009 Revised. 2009 Production.

Oregon State Archives. 2014. Oregon Administrative Rules (OARS), Division 90 (141-85-0515, and 141-90-0005 through 141-90-0055). Administrative Rules for Wetland Delineation Report Requirements and for Jurisdictional Determinations for the Purpose of Regulating Fill and Removal within Waters of the State. Accessed online in 2014 at URL: http://arcweb.sos.state.or.us/pages/rules/oars_100/oar_141/141_090.html

Oregon Department of State Lands (DSL). 2010. *Using Tidal Data to Determine Highest Measured Tide (HMT).* This document provides tabular data from the NOAA NOS website, and from DSL's 1989 document *Heads of Tide for Coastal Streams in Oregon*. Accessed online via URL: *www.oregon.gov/dsl/PERMITS/using_tidal_data_for_hmt.doc*

Roby, D. D., K. Collis, D. E. Lyons, J. Y. Adkins, Y. Suzuki, P. Loschl, T. Lawes, K. Bixler, A. Peck-Richardson, A. Patterson, S. Collar, N. Banet, K. Dickson, G. Gasper, L. Kreinsieck, K. Atkins, L. Drizd, J. Tennyson, A. Mohoric, A. Evans, B. Cramer, M. Hawbecker, N. Hostetter, J. Zamon, and D. Kuligowski. 2013. Research, monitoring, and evaluation of avian predation on Salmonid smolts in the Lower and Mid-Columbia River. Draft 2012 annual report. Bird Research Northwest. Available on-line at URL www.birdresearchnw.org.

Ryan, Peter. Wetlands Specialist, PWS. Oregon Department of State Lands. 2014. Personal communication with C. Jonas Moiel via e-mail regarding DSL's jurisdiction of wetlands below HMT. February 20, 2014.

Teed, Tina. Environmental Resource Specialist., Portland District Army Corps of Engineers, Environmental Branch. 2014. Personal communication with C. Jonas Moiel via e-mail regarding the Corps' jurisdiction of wetlands below the high tide line. February 12, 2014.

U.S. Army Corps of Engineers (Corps). 2014. Double-crested Cormorant Management Plan to Reduce Predation of Juvenile Salmonids in the Columbia River Estuary- Draft Environmental Impact Statement. Not for Publc Distribution.

U.S. Army Corps of Engineers (Corps). 2013. Oregon 2013 State Wetland Plant List from R.W. Lichvar, 2013 : *The National Wetland Plant List.* Phytoneuron 2013-49. 1-241. U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory (CRREL)

U.S. Army Corps of Engineers (USACE). 2012. Columbia River Channel Improvements Project, Biological Assessment. U.S. Army Corps of Engineers, Portland District, Portland, OR.

U.S. Army Corps of Engineers (Corps). 2010. Wetlands Regulatory Assistance Program ERDC/EL TR-10-3. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0).* May 2010.

U.S. Army Corps of Engineers Environmental Laboratory (Corps). 1987. *Corps of Engineers Wetlands Delineation Manual Technical Report Y-87-1. US Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.*

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). Web Soil Survey. Accessed online in January 2014 at URL http://websoilsurvey.nrcs.usda.gov/app/

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2014. WETS Table for Astoria, Oregon WETS Station OR224, located at the Astoria Regional Airport. Start yr. -1971 End yr. –2000 Accessed on-line in January 2014 at URL: http://agacis.rcc-acis.org/41007/wets

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2007. Clatsop County, Oregon Hydric Soils List- All Components. Survey Area Version: 6 Survey Area Version Date: 12/22/2006. Accessed online in January 2014 at URL: ftp://ftp-fc.sc.egov.usda.gov/MO1/hydric_pdf/oregon/OR007_hydric.pdf

U.S. Department of Agriculture (USDA), Soil Conservation Service (SCS). 1988. *Soil Survey of Clatsop County, Oregon.*

U.S. Fish and Wildlife Service. (USFWS). 2014. U.S. Fish and Wildlife Service National Wetlands Inventory Map. Map accessed online in January 2014 at URL: http://www.fws.gov/wetlands/Data/Mapper.html -The online mapper indicates the wetland polygons in the area were mapped from true color aerials at a scale of "digital or greater than 1:40K".

U.S. Geological Survey. (USGS). 1949, photo-revised 1984, bathymetry added 1984. Chinook, Washington 7.5 minute topographic quadrangle map.