

Appendix D: Wetland and Surface Water Report

Oregon Clean Energy, LLC

**Wetland and Surface Water
Delineation Report**

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

November 2012



A handwritten signature in blue ink, appearing to read "Vincent Tremante", written over a light blue rectangular background.

Vincent Tremante
Project Ecologist

**Wetland and Surface Water
Delineation Report**

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

Prepared for:
Oregon Clean Energy, LLC

Prepared by:
ARCADIS U.S., Inc.
100 E Campus View Blvd
Suite 200
Columbus
Ohio 43235-1447
Tel 614 985 9100
Fax 614 985 9170

Our Ref.:
MA001187.0001

Date:
November 5, 2012

This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential and exempt from disclosure under applicable law. Any dissemination, distribution or copying of this document is strictly prohibited.

1. Introduction	1
1.1 Project Summary	1
1.2 Site Description	1
2. Methodology	2
2.1 Agency Resource Information	2
2.1.1 Topographic Map	3
2.1.2 Aerial Photography	3
2.1.3 Soil Survey of Lucas County, Ohio	3
2.1.4 National Wetlands Inventory – Wetlands Mapper	4
2.1.5 Federal Emergency Management Agency Flood Insurance Rate Map	4
2.1.6 USFWS and ODNR Coordination	5
2.2 Wetland Determination	7
2.3 Headwater Habitat Evaluation Index (HHEI)	8
3. Results	10
3.1 Wetland Determination	10
3.2 Streams	11
3.2.1 Stream 1 – Driftmeyer Ditch (HHEI #1)	11
3.2.2 Stream 2 – Johlin Ditch (HHEI #2)	12
3.2.3 Upland Ditch 1	12

Tables

Table 1.	Federal Listed Species	6
Table 2.	Stream Characteristics	12

Figures

Figure 1.	Site Location Map
Figure 2.	Aerial Map
Figure 3.	Soil Survey



Table of Contents

- Figure 4. National Wetland Inventory
Figure 5. FEMA Flood Insurance Rate Map
Figure 6. Field Data Points

Appendices

- A Agency Correspondence
B Photographs
C Wetland Determination Data Forms
D HHEI Scoring Sheets



Wetland and Surface Water Delineation Report

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

1. Introduction

1.1 Project Summary

Oregon Clean Energy, LLC (OCE) is in the process of planning and designing an 800 megawatt (MW) natural gas-fired combined cycle electric generating plant to convert clean natural gas to electricity. The new facility, called the Oregon Clean Energy Center (the Project), will provide a clean alternative for planned closures of several aging regional coal burning facilities and provide enough energy for approximately 500,000 homes. Understanding natural resources on the Project site is important to designing a layout that will result in minimal environmental impact. This report documents the investigations and results associated with delineating wetland and surface water resources in accordance with state and federal methodologies and procedures.

1.2 Site Description

The Project area is an approximately 30-acre parcel located at 816 N. Lallendorf Road, Oregon, Lucas County, Ohio (the Site). The Site center is more specifically located at 41°40'02.30" N and 83°26'38.28" W. A Site location map and aerial photography are provided as Figures 1 and 2, respectively.

The Site is zoned Commercial-Industrial within the Cedar Point Development Park, a designated Foreign Trade Zone. The setting is within a mixed industrial, commercial and agricultural area that is located east of N. Lallendorf Road, west of actively managed farmland located at 4632 Cedar Point Road, north of the Norfolk Southern Railroad, and south of the John Gradel and Sons' Farms. Access to the Site is via N. Lallendorf Road. The eastern edge of the Site is transected by Johlin Ditch, while Driftmeyer Ditch transects the western portion of the Site. Both ditches flow north to Lake Erie, located less than 2 miles north of the Site. First Energy-owned transmission lines extend in an east-west direction just to the north of the Site.

The Site land use consists of actively managed farmland with associated structures, including two single-family dwellings, a garage and a barn. The majority of the parcel is in and has historically been in active agricultural use. Site topography is relatively flat, at an elevation of approximately 590 feet above mean sea level (NADV 88). The Maumee River, which flows southwest to northeast to its confluence with Lake Erie, is situated approximately 2 miles northwest of the Site.



Wetland and Surface Water Delineation Report

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

2. Methodology

Field data collection was conducted on October 11-12, 2012 in accordance with methods outlined in the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Northcentral and Northeast Region, Version 2.0.¹

2.1 Agency Resource Information

Agency resource information was compiled prior to the field reconnaissance to identify existing information for the Site. These resources include the following:

- Topographic Map²
- Lucas County Orthophotography³
- Digital Soil Survey of Lucas County, Ohio⁴
- National Wetland Inventory (NWI) Map⁵
- Federal Emergency Management Act (FEMA) Flood Insurance Rate Map (FIRM)⁶
- U.S. Fish and Wildlife Service (USFWS) and Ohio Department of Natural Resources (ODNR) Coordination

¹ U.S. Army Corps of Engineers. 2011. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, ed. J.S. Wakeley, R.W. Lichvar, C.V. Noble, and J.F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

² "NGS_TOPO_US_2D". ArcGIS. USA Topographic Maps. National Geographic Society, 2010.

³ USDA NRCS Geospatial Data Gateway. <http://datagateway.nrcs.usda.gov/>. Accessed October 23, 2012.

⁴ Natural Resources Conservation Service. U.S. Department of Agriculture. Soil Survey Geographic (SSURGO) database for Lucas County, Ohio, April 27, 2012.

⁵ U. S. Fish and Wildlife Service. September 24, 2012. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. <http://www.fws.gov/wetlands/>

⁶ Federal Emergency Management Agency (FEMA), Flood Insurance Rate Maps (FIRM), Lucas County, Ohio, August 16, 2011.



Wetland and Surface Water Delineation Report

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

2.1.1 Topographic Map

The digital geographic information system (GIS) topographic map for the Site was used to determine stream gradients, watershed areas, and general hydrologic regimes (e.g., intermittent, perennial). The topographic map for the Site serves as a background for Figure 1.

2.1.2 Aerial Photography

Aerial photography of Lucas County from 2011 was reviewed to evaluate surface cover and land use, and serve as the background for Figure 2.

2.1.3 Soil Survey of Lucas County, Ohio

The digital Web Soil Survey was used to identify soil mapping units on the Site, and to determine if field observations match the profiles and descriptions in the soil survey. According to this resource, the soil units on the Site are mapped as Latty silty clay (Lc), Fulton silty clay loam, 0 to 2 percent slope (FuA) and Water.

Lc is a nearly level, deep, very poorly drained soil on lake plains with restrictive layers greater than 80 inches in depth. This soil receives runoff from adjacent, higher lying soils and is subject to ponding but not flooding. Depth to water table may be from 0 to 12 inches. Where the soil has been drained, the root zone is deep. Surface ditches can be used to lower the water table. Lc soils contain predominantly Latty components but also Toledo, and may also develop hydric indicators if the water table is above 12 inches during the growing season or there is long to very long ponding during the growing season. The majority of the Site is comprised of this soil type.

FuA is a nearly level, somewhat poorly drained soils on lake plains on a convex rise with restrictive layers occurring greater than 80 inches in depth and having no ponding or flooding. Depth to water table may be 6 to 18 inches. FuA soils have small components of both Toledo and Latty soil types in narrow drainage ways or low areas which may be hydric if the water table is above 12 inches during the growing season or there is long to very long ponding during the growing season.

There is an open water pond immediately north of the west portion of the Site. Soil survey mapping is intended for use in general farm, local and wider area planning and are considered valid at 1:15,840 scale. Mapping may not be accurate when used as smaller scales for smaller sites. The soil unit mapping indicates the W area extends to



Wetland and Surface Water Delineation Report

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

just within the Project site bounds. Site investigations and aerial mapping confirm that the water area indicated by the W soil unit is, in fact, north of the Site and not within the Project area.

Two drainage features transverse the east and west ends of the Site. These drainage features appear to keep the water table low during the growing season to promote agricultural use of the land. The soil survey map for the Site is included in Figure 3.

2.1.4 National Wetlands Inventory – Wetlands Mapper

The NWI Program was established by the USFWS in 1974 to conduct a nationwide inventory of United States wetlands to provide its biologists and others with information on the distribution of wetlands to aid in wetland conservation efforts. The NWI developed a wetland classification system which is now both the official Service wetland classification system and the federal standard for wetland classification. NWI mapping is generated from aerial photography or digital aerial imagery and provides indications of where potential wetlands may occur. Field verification is, therefore, required to establish if wetland criteria exist within mapped areas.

The NWI Program produces wetland maps and geospatial wetland data for use in the United States. The status of mapping has been made available through various media such as state atlases, regional status maps, and through the internet via the Wetlands Mapper online tool.

Wetland Mapper data indicate there are no wetlands within the Site. There are several freshwater ponds indicated within the surrounding areas. One pond is immediately adjacent to the northwest portion of the Site; a second is approximately 800 feet west of the Site. There are several residential ponds just under ½ mile south of the Site. There is one freshwater forested wetland indicated approximately ¼ mile east-southeast. The NWI mapping for the Project is included as Figure 4.

2.1.5 Federal Emergency Management Agency Flood Insurance Rate Map

The identification and location of the any mapped 100-year flood hazard zones within the Site was determined by reviewing the FEMA's FIRM. Panel number 115 of FIRM map number 39095C0115E indicates that there are Zone-A 100-year flood hazard areas mapped within the Site. Driftmeyer Ditch crosses the west end of the Site and is the only mapped Zone-A within the Site. Mapping indicates the zone is restricted to



Wetland and Surface Water Delineation Report

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

within the banks of the ditch and does not expand further onto the Site. The extent of the 100-year flood hazard zone is shown in Figure 5.

2.1.6 USFWS and ODNR Coordination

Under the Endangered Species Act of 1973, the USFWS is the lead federal agency tasked with the identification, protection and recovery of any listed endangered or threatened species. "Endangered" species are considered in danger of extinction through all or a significant portion of their range. "Threatened" species are considered likely to become endangered with the foreseeable future. Pre-coordination with the USFWS is recommended to avoid any unauthorized "taking" of federally protected species. Should any favorable habitat for threatened or endangered species be identified or actual species observed within a project area, formal coordination with the USFWS may be required.

During the Site visit, favorable habitat for federally listed species were investigated to determine if any of these habitats were located within the project area or within ¼ mile surrounding the Site. Federally listed endangered and threatened species in Lucas County Ohio include the Indiana Bat (*Myotis sodalis*), Karner Blue Butterfly (*Lycaeides melissa samuelis*), Kirtland's Warbler (*Dendroica kirtlandii*), Piping Plover (*Charadrius melodus*), Ruffed Grouse (*Villosa fabalis*), and the Eastern Prairie Fringed Orchid (*Platanthera leucophaea*).

No favorable habitat for these species was observed within the Site. No favorable habitat for all but the Indiana Bat was observed in the adjacent ¼ mile surrounding area. One small isolated forest area located approximately 2,500 feet southeast of the site and approximately 6.5 acres was observed. There was no access to evaluate the area for favorable roost trees. However, past experience with presence/absence surveys for Indiana Bat with the USFWS has shown that small isolated stands of uniform age with no significant adjacent water bodies are poor habitat even if favorable roost trees do exist. Table 1 below is a summary table of the federally listed species habitat findings.



Wetland and Surface Water Delineation Report

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

Table 1. Federal Listed Species

Species Name	Scientific Name	Federal ¹ Status	Favorable Habitat ²	Habitat Observed On Site	Habitat Observed ¼ Mile of Site
Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>	T	Mesic prairie, sedge meadows, marshes, bogs	No	No
Indiana Bat	<i>Myotis sodalis</i>	E	Humid caves, wooded areas with loose bark trees, snags	No	Maybe ³
Karner Blue Butterfly	<i>Lycaeides melissa samuelis</i>	E	Pine, oak savanna/barrens supporting wild lupine (larval host plant and adult nectar source)	No	No
Kirtland's Warbler	<i>Dendroica kirtlandii</i>	E	Large stands of 6-22 year old Jack pines (<i>Pinus banksiana</i>)	No	No
Piping Plover	<i>Charadrius melodus</i>	E	Wide, flat, open, sandy, beaches with little grass or other vegetation	No	No
Rayed Bean	<i>Villosa fabalis</i>	E	Smaller headwater creeks with sand and gravel substrates; requires host fish for life cycle (no fish observed)	No	No

1- T = Threatened; E = Endangered

2- Summarized from USFWS Fact Sheets

3- One area (approx. 6.5 acres) of mature forest is within the ¼ mile radius but was inaccessible. Small remote/isolated forest stands that are uniform (no flyways) without adjacent water sources are poor habitat candidates for Indiana Bat even if favorable roost trees exist within the site.

Pre-coordination was requested of the USFWS for the identification of any threatened or endangered species or favorable habitat for these species in or around the Site. A response was received on issued October 11, 2012 which indicated there are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. Additionally, the response letter indicated that due to the project type, size, and location, no impacts on federally listed, endangered, threatened, candidate species or their habitats was anticipated. A copy of the USFWS response letter is included in Appendix A.



Wetland and Surface Water Delineation Report

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

The ODNR Division of Wildlife has the legal authority over Ohio's fish and wildlife. Ohio law⁷ allows the chief of the Division to adopt rules restricting the taking or possession of native wildlife threatened with statewide extirpation. The Division uses six categories to define the status of selected wildlife: endangered, threatened, species of concern, special interest, extirpated and extinct. Pre-coordination with the ODNR is recommended to avoid any unauthorized "taking" of state protected species. Should any favorable habitat for state protected species be identified or actual species observed within a project area, formal coordination with the ODNR would be required.

Pre-coordination was requested of the ODNR Division of Wildlife to search the Natural Heritage Database for the identification of any known records of rare or endangered species within one mile of the Site. A response was received on September 17, 2012 which indicated there are no records of unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, parks or forests, national wildfire refuges, parks or forests or other protect natural areas within one mile of the Project area. A copy of the response letter is included in Appendix A.

2.2 Wetland Determination

The routine wetland determination procedure for sites larger than 5 acres as described in the 1987 *Corps of Engineers Wetland Delineation Manual* was conducted at the Site on October 11, 2012. Three meandering transects were walked observing potential wetland indicators (e.g., hydrophytes, depressions, saturated/inundated areas) of wetland systems and observation points were sampled approximately every 500 feet. Where no change in vegetation or hydrology was observed, sampling distance between observation points was increased.

Soil, hydrology and vegetation observations were recorded at each sample point and each category was evaluated for potential wetland characteristics. No potential wetlands areas were observed at the Site. Photographs were taken at each sampling point and are included in Appendix B. Routine wetland determination forms are filled out for each data point location and are included in Appendix C. When potential wetlands are identified, a wetland and upland data point are recorded to establish the boundary location. Data point locations were recorded with sub-meter global positioning system (GPS) equipment.

⁷ Ohio Revised Code 1531.25 Protection of species threatened with statewide extinction.



Wetland and Surface Water Delineation Report

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

At most observation points, a soil pit was excavated to approximately 14 inches below the ground surface. Soils were characterized according to their physical properties such as texture, color, and saturation. The Munsell Soil Color Charts were used to determine the value and chroma of the soil matrix, any mottles and/or gleyed soils. The Lucas County Soil Survey and aerial photography was used to provide additional soil information and descriptions. Indicators of hydrology such as drift lines, drainage patterns, sediment deposits, or inundation/saturation were noted to determine if the suspected area satisfied the criteria for hydrology.

Dominant plant species within each of the four strata (i.e., tree, shrub/sapling, woody vine, and herbaceous) were identified to species in accordance with methods outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*. The indicator status of each dominant species was obtained from the revised 2012 National Wetlands Plant List for the Northcentral and Northeast Region.

2.3 Headwater Habitat Evaluation Index (HHEI)

The Ohio Environmental Protection Agency (Ohio EPA) has developed the Headwater Habitat Evaluation Index (HHEI) as a numeric evaluation index capable of defining the aquatic life use potential of Primary Headwater Habitat (PHWH) streams in Ohio.⁸ The HHEI is intended for primary headwater streams with drainage areas less than one square mile.

The HHEI is composed of the following principal metrics:

- Substrate (type and quality)
- Maximum Pool Depth
- Bank Full Width

⁸ Ohio EPA. 2012. Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams. Version 3.0. Ohio EPA Division of Surface Water, Columbus, Ohio. 117 pp.



Wetland and Surface Water Delineation Report

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

The maximum possible HHEI score is 100. Each of the metrics are scored individually and then summed to provide the total HHEI score. Photographs and HHEI scoring sheets are included in Appendix B and D, respectively.



Wetland and Surface Water Delineation Report

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

3. Results

Based on a review of available Site information and application of the guidance in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, no potential wetlands were identified within the Site. Two potentially jurisdictional streams were identified within Site. Field data is described below.

3.1 Wetland Determination

Twelve data points were sampled throughout the Site (as shown on Figure 6). None of the data point locations contained all three wetland criteria; therefore, no wetlands were identified on the Site. Site photographs and "routine"-level Wetland Determination Data Forms can be found in Appendices A and B, respectively.

When there are periods with below-normal rainfall, different procedures for determining wetland hydrology may be required. WETS tables, provided by the Natural Resource Conservation Service's National Water and Climate Center, are used to determine "normal" precipitation and are calculated from 30-years of weather records. Despite drier than normal conditions throughout much of the Midwest in 2012, annual rainfall (Oregon, OH) through September 31st was 24.4 inches and was within a "normal" range. Average annual rainfall for the same time period is 25.4 inches.⁹ Additionally, above "normal" rainfall occurred over the preceding three months of July, August and September. Actual recorded rainfall for this time period was 11.2 inches; the WETS¹⁰ table "normal" upper limit for those same three months was 10.9 inches. Therefore, no problem hydrology criteria were evaluated.

Surface disturbance at a site can create a "problematic" circumstance for evaluation of wetland criteria and require additional investigation. At the time of field reconnaissance, the Site was in row crop agriculture which is only considered problematic for hydrophytic vegetation when there are hydric soils and one primary or two secondary indicators of wetland hydrology. Only one sample area had observable signs of hydrology, but it did not have hydric soil indicators. The observed hydrologic

⁹ "History for Toledo Metcalf, OH". Weather Underground. October, 24, 2012. <http://www.wunderground.com/history/airport/KTDZ/2012/1/1/CustomHistory.html?dayend=12&monthend=10&yearend=2012&req_city=NA&req_state=NA&req_statename=NA>.

¹⁰ "Climate Information – Wetlands Retrieval for Ohio". U.S. Department of Agriculture Natural Resources Conservation Service. October 24, 2012. <<http://www.wcc.nrcs.usda.gov/ftpref/support/climate/wetlands/oh/39095.txt>>



Wetland and Surface Water Delineation Report

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

indicators (B3-Drift Deposits and D1-Stunted or Stressed Plants) at this location were marginal and may have other causes such as flash flooding or competition for light and water by adjacent woody vegetation. Additionally, a reference vegetation site was identified with undisturbed soils and vegetation adjacent to Driftmeyer Ditch. An analysis of the vegetation at this location did not show a predominance of hydrophytic vegetation. Therefore, additional “problematic” criteria were not evaluated for hydrophytic vegetation.

3.2 Streams

The following is a description of each stream identified within the Site during the investigation. The stream locations are shown in Figure 6 and photographs are located in Appendix B. HHEI forms can be found in Appendix D.

3.2.1 Stream 1 – Driftmeyer Ditch (HHEI #1)

This small headwater stream is a direct tributary to Lake Erie. The drainage area of this stream is less than one square mile. Surrounding land use is primarily row-crop agriculture, with two residential parcels. The average bank full width of the reach within the Site was approximately 9.25 feet with a maximum pool depth of 3.5 inches. The assessed segment of Stream 1 transverses the west end of the Site running south to north. The stream enters the Site through two 53-inch steel culverts from under the railroad tracks. There is a large 83-inch concrete culvert approximately 25 feet long under an agricultural road that crosses over the ditch. Culvert locations are identified in Figure 6.

Silt and muck were the two predominant substrates in this reach of the stream; other substrates included sand and fine detritus. Approximately 60 percent canopy coverage, no sinuosity, and a very narrow riparian zone of approximately 15 feet were observed. This segment of the stream was noted to be low-gradient, stagnant, and silt-laden. Based on Ohio EPA’s PHWH guidance, Stream 1 received an HHEI score of 41 which classifies it as a Modified Class II PHWH. “Modified” PHWH streams represent a degraded condition resulting from permanent disturbance such as channelization and have limited ability to support Warm Water Habitat communities.

Table 2 presents a summary of the stream characteristics observed during the field investigations.



Wetland and Surface Water Delineation Report

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

Table 2. Stream Characteristics

Stream	Flow Regime*	Connectivity	HHEI Score	Average Bank Full Width	Max. Pool Depth**
Stream 1	P	HC	41	9.25'	3.5"
Stream 2	E	HC	25	8.3'	None

Notes: P=Perennial; E=Ephemeral; HC=Hydrologically Connected/Jurisdictional

* Perennial stream reach contained greater than 3 inches of water

** Measured under normal flow conditions

3.2.2 Stream 2 – Johlin Ditch (HHEI #2)

This small headwater stream is tributary to Lake Erie. The drainage area of this stream is less than one square mile. Surrounding land use is row-crop agriculture. The average bank full width of the reach within the Site was approximately 8.3 feet. The channel was dry at the time of evaluation, so there was no maximum pool depth. The assessed segment of Stream 1 transverses the east end of the Site running south to north.

Clay and leaf pack/woody debris were the two predominant substrates in this reach of the stream. Approximately 100 percent canopy coverage, no sinuosity, and very narrow riparian zone of approximately 15 feet were observed. This segment of the stream was noted to be low-gradient. Based on Ohio EPA's PHWH guidance, Stream 2 received an HHEI score of 25 and has a PHWH classification of Modified Class I PHWH.

Table 2 presents a summary of the stream characteristics observed during the field investigations.

3.2.3 Upland Ditch 1

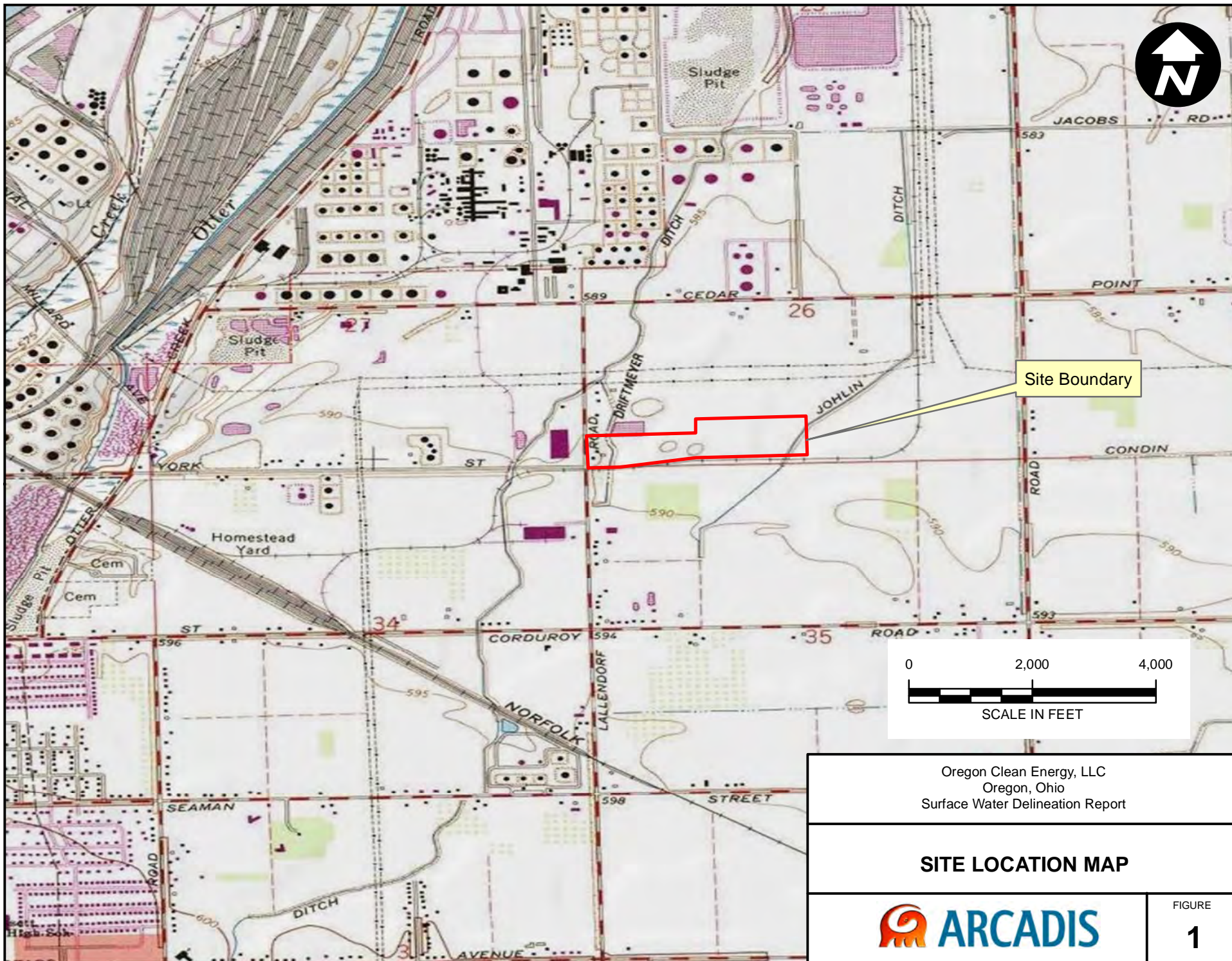
A man made drainage feature was observed along the north side of the adjacent railroad tracks on the southern boundary for the Site. This feature is located just outside of the Site boundary for the Project, however, observations are provided due to its immediate proximity. The drainage feature is recently maintained in some sections (Photo 16) and less recently in others (Photo 17). This ditch should not be considered jurisdictional as it is a railroad drainage feature which is currently maintained for the



**Wetland and Surface
Water Delineation
Report**

Oregon Clean Energy Center
816 N. Lallendorf Road
Oregon, Ohio

sole purpose of conveying storm water runoff from the adjacent railroad tracks. An HHEI assessment was not performed on this maintained, man-made drainage feature.



Oregon Clean Energy, LLC
Oregon, Ohio
Surface Water Delineation Report

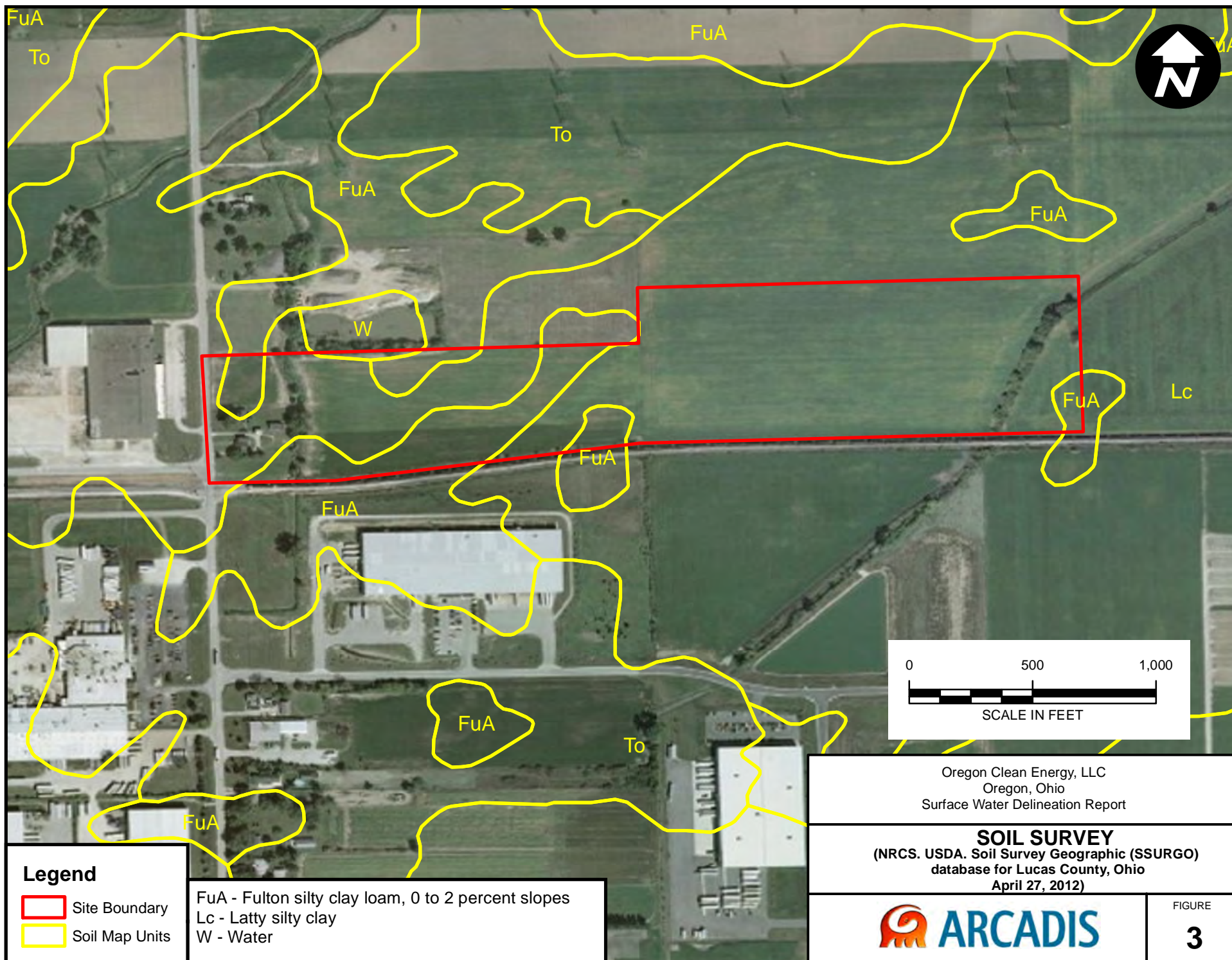
SITE LOCATION MAP

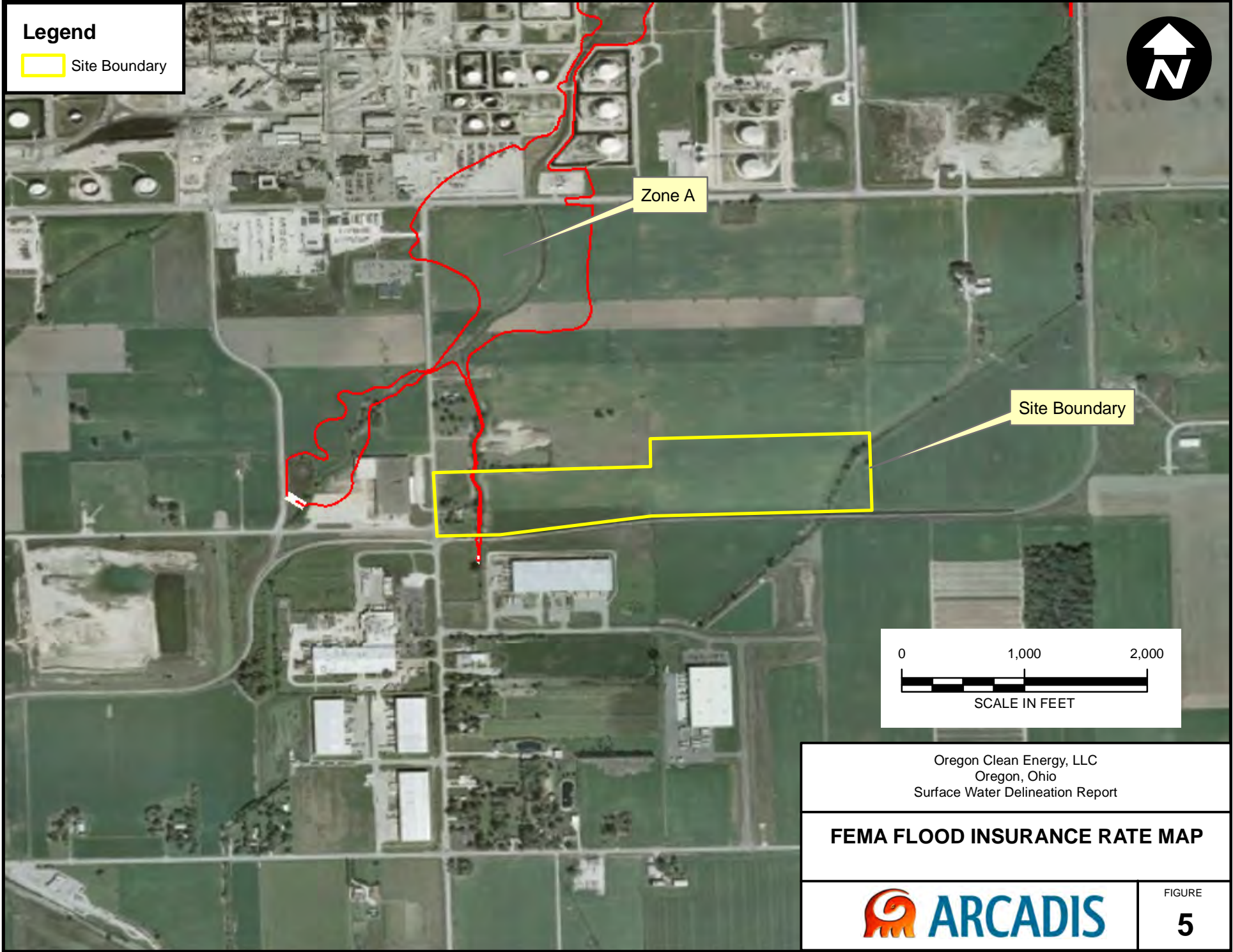


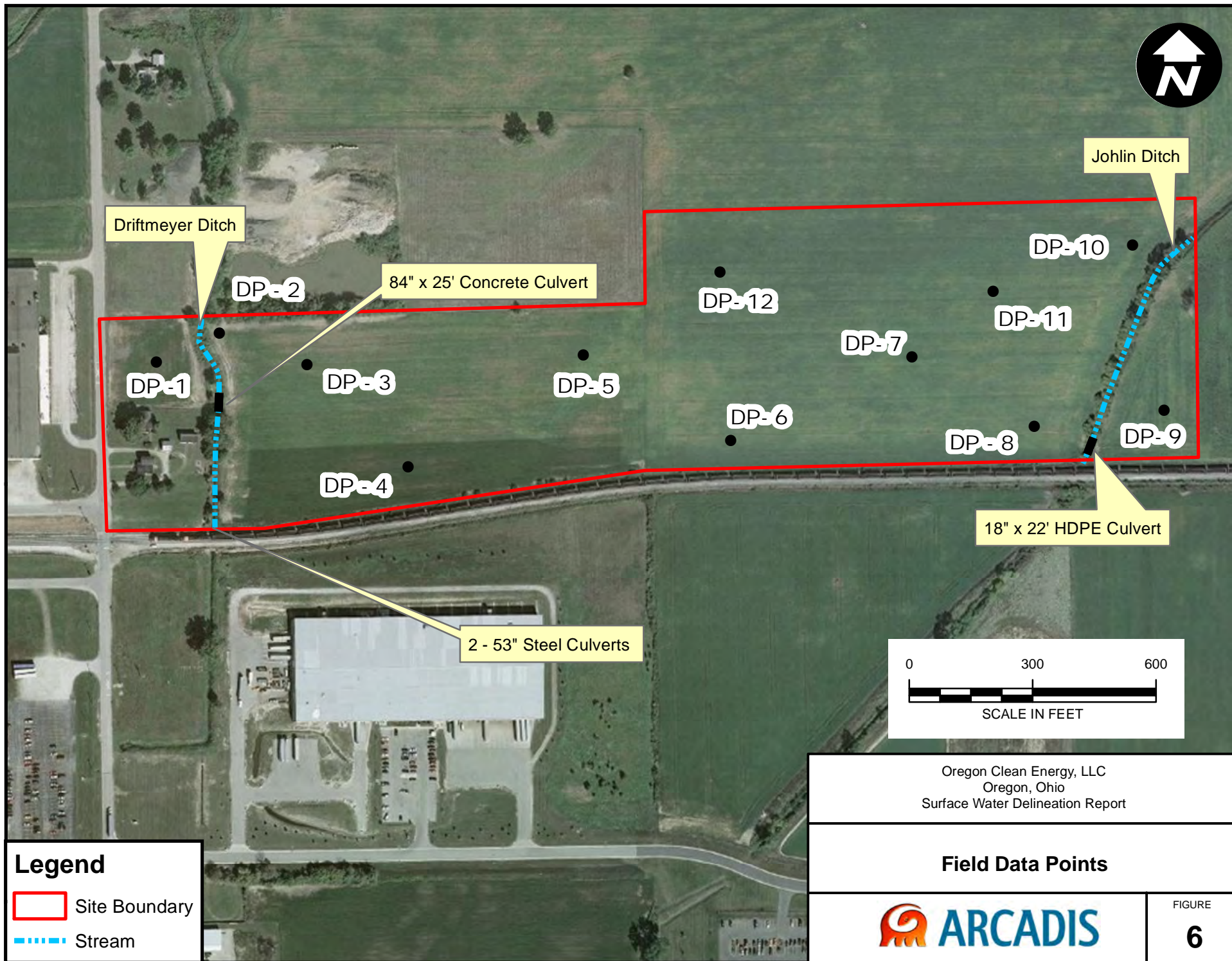
FIGURE

1











Appendix A

Agency Correspondence



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994

October 11, 2012

ARCADIS U.S., Inc.
Attn: Lynn Gresock
1 Executive Drive, Suite 303
Chelmsford, Massachusetts 01824

Reference: Oregon Clean Energy Project – City of Oregon in Lucas County, Ohio

Dear Ms. Gresock,


TAILS # 03E15000-2012-TA-1444

We have received your recent correspondence requesting information about the subject proposal. There are no Federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. Based on the information you have provided, at this time we have no objection to the proposed project.

ENDANGERED SPECIES COMMENTS: Due to the project type, size, and location, we do not anticipate any impact on federally listed endangered, threatened, or candidate species, or their habitats. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts.

If you have additional questions or require further assistance with your project proposal, please contact me at the following number (614) 416-8993, x12. I would be happy to discuss the project in further detail with you and provide additional assistance if necessary. In addition, you can find more information on natural resources in Ohio, and a county list of federally threatened and endangered species in Ohio, by visiting our homepage at: <http://www.fws.gov/midwest/ohio>.

Sincerely,


for Mary Knapp, Ph.D.
Field Supervisor



Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR

JAMES ZEHRINGER, DIRECTOR

Ohio Division of Wildlife

Scott Zody, Chief
2045 Morse Rd., Bldg. G
Columbus, OH 43229-6693
Phone: (614) 265-6300

September 17, 2012

Lynn Gresock
ARCADIS U.S., Inc.
One Executive Drive, Suite 303
Chelmsford, MA, 01824

Dear Ms. Gresock

After reviewing the Natural Heritage Database, I find the Division of Wildlife has no records of rare or endangered species in the Oregon Clean Energy Center project area, including a one mile radius, at 816 Lallendorf Road, in the City of Oregon, Lucas County, Ohio. We are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, parks or forests, national wildlife refuges, parks or forests or other protected natural areas within a one mile radius of the project area.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although we inventory all types of plant communities, we only maintain records on the highest quality areas.

This letter only represents a review of rare species and natural features data within the Ohio Natural Heritage Database. It does not fulfill coordination under the National Environmental Policy Act (NEPA) or the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S. C. 661 et seq.) and does not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Please contact me at 614-265-6452 if I can be of further assistance.

Sincerely,



A handwritten signature in blue ink that reads "Greg Schneider". The signature is written in a cursive style with a small horizontal line above the "n" in "Schneider".

Greg Schneider, Administrator
Ohio Natural Heritage Program



Appendix B



Photographs



Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 1	Date: 10/11/12		
Direction Photo Taken: East			
Description: View of Data Point 1 in an actively managed agricultural field.			
Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 2	Date: 10/11/12		
Direction Photo Taken: South			
Description: View of Data Point 2 and adjacent Driftmeyer Ditch. Typical row crop decline in areas with adjacent woody vegetation.			



Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 3	Date: 10/11/12		
Direction Photo Taken: East			
Description: View of Data Point 3 in an actively managed agricultural field.			
Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 4	Date: 10/11/12		
Direction Photo Taken: North			
Description: View of Data Point 4 in an actively managed agricultural field.			



PHOTOGRAPHIC LOG



Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 5	Date: 10/11/12		
Direction Photo Taken: South			
Description: View of Data Point 5 in an actively managed agricultural field.			
Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 6	Date: 10/11/12		
Direction Photo Taken: West			
Description: View of Data Point 6 in an actively managed agricultural field			


Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 7	Date: 10/11/12		
Direction Photo Taken: West			
Description: View of Data Point 7 in an actively managed agricultural field.			
Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 8	Date: 10/11/12		
Direction Photo Taken: Northwest			
Description: View of Data Point 8 in an actively managed agricultural field.			

Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 9	Date: 10/11/12		
Direction Photo Taken: Southwest			
Description: View of Data Point 9 in an actively managed agricultural field.			
Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 10	Date: 10/11/12		
Direction Photo Taken: Southwest			
Description: View of Data Point 10 in an actively managed agricultural field.			

Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 11	Date: 10/11/12		
Direction Photo Taken: South			
Description: View of Data Point 11 in an actively managed agricultural field.			
Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 12	Date: 10/11/12		
Direction Photo Taken: Southeast			
Description: View of Data Point 12 in an actively managed agricultural field.			

Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 13	Date: 10/12/12		
Direction Photo Taken: South			
Description: Driftmeyer Ditch at upstream end of 84" concrete culvert; looking upstream.			
Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 14	Date: 10/12/12		
Direction Photo Taken: North			
Description: Driftmeyer Ditch at downstream end of 84" concrete culvert; looking downstream.			

Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 15	Date: 10/12/12		
Direction Photo Taken: Northwest			
Description: Johlin Ditch, looking downstream of the 18" HDPE culvert.			
Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 16	Date: 10/12/12		
Direction Photo Taken: East			
Description: Dredged railroad drainage ditch east of Driftmeyer Ditch. Not included in study area. 41.666333 N -83.447666 W			

Property Name: Oregon Clean Energy		Location: Oregon, Ohio	Project No. MA001187.0001
Photo No. 17	Date: 10/12/12		
Direction Photo Taken: East			
Description: Unmanaged section of RR drainage ditch in between Driftmeyer ditch and Johlin Ditch. Not included in study area. 41.66655 N -83.445833 W			



Appendix C

Wetland Determination Data Forms

Site: 816 N. Lallendorf Road		City/County: Oregon, Lucas County		Sampling Date: 10/11/2012	
Applicant/Owner: Oregon Clean Energy LLC		State: OH		Sampling Point: DP-1	
Investigator(s): V. Tremante		Section, Township, Range:			
Landform: (hillslope, terrace, etc.): low terrace		Local relief (concave, convex, none): None		Slope (%):	
Subregion (LLR or MLRA): LLR L		Lat. 41d 40m 2.399s		Long. -83d 26m 54.599s Datum:	
Soil Map Unit Name: Fulton silty clay loam		NWI Classification: n/a			
Are climatic/hydrologic conditions on the site typical for time of year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in the Remarks)					
Are Vegetation <input checked="" type="checkbox"/> Soil <input checked="" type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed?					
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic?					
Are Normal Circumstances Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If needed, explain any answers in Remarks)					
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>					
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>					
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>					
Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, optional Weland Site ID:					
Remarks: Agriculture row crops have disturbed the soil and vegetation layers. Though ditches exist within the site and have likely affected the site hydrology, they are a permanent alteration and have been in place for sufficient time that current conditions would be normal.					
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (check all that apply)				Secondary Indicators	
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water Stained Leaves (B9)	<input type="checkbox"/>	Surface Soil Cracks (B6)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Aquatic Fauna (B13)	<input type="checkbox"/>	Drainage Patterns (B10)
<input type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Marl Deposits (B15)	<input type="checkbox"/>	Moss Tim Lines (B6)
<input type="checkbox"/>	Water Marks (B1)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Dry-Season Water Table (C2)
<input type="checkbox"/>	Sediment Deposits (B2)	<input type="checkbox"/>	Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/>	Crayfish Burrows (C8)
<input type="checkbox"/>	Drift Deposits (B3)			<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Stunted or Stressed Plants (D1)
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soil (C6)	<input type="checkbox"/>	Geomorphic Position (D2)
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/>	Shallow Aquitard (D3)
<input type="checkbox"/>		Thin Muck Surface (C7)	<input type="checkbox"/>	Microtopographic Relief (D4)	
<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	FAC-Neutral Test (D5)
Field Observations:					
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches) <input type="checkbox"/>					
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches) <input type="checkbox"/>					
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches) <input type="checkbox"/>					
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>					
Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Normal rainfall for the year and above normal rain fall for the previous 3 months according to WETS.					

VEGETATION

Sampling Point: DP-1

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet				
1.					Number of dominant species that are OBL, FACW, or FAC: 0 (A)				
2.					Total number of dominant species across all strata: 1 (B)				
3.					Percent of dominant species that are OBL, FACW, or FAC: 0% (A/B)				
4.					Prevalence Index Worksheet:				
5.					Total % cover of:				
6.					OBL species	0	x	1	0
7.					FACW species	0	x	2	0
					FAC species	0	x	3	0
					FACU species	0	x	4	0
					UPL species	100	x	5	500
					Column Totals:	100	(A)		500 (B)
					Prevalence Index: 5.0 (B/A)				
					Hydrophytic Vegetation Indicators:				
					Rapid Test for Hydrophytic Vegetation				
					Dominance Test is >50%				
					Prevalence Index is ≤3.0*				
					Morphological Adaptations*				
					Problematic Hydrophytic Vegetation*				
					* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic				
					Definitions of Vegetation Strata:				
					Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height				
					Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1M) tall.				
					Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.				
					Woody Vines - All woody vines greater than 3.28 ft in height.				
					Hydrophytic Vegetaion Present?				
					Yes		No	X	

Shrub Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		0	Total Cover	

Herb Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status
1. <i>Glycine max</i>	5' radius	100	Y	UPL
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		100	Total Cover	

Woody Vine Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status
1.				
2.				
3.				
4.				
		0	Total Cover	

Remarks: Photo 1. Agriculture row crops have disturbed the vegetation. Undisturbed reference areas greater than 1 year old with similar hydrology and adjacent to the ditches show a predominance of upland species. See DP-13

SOIL

Sampling Point: DP-1

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

Depth	Matrix		Redox Features					
(inches)	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-14	10YR 3/3	100	None				clay loam	

* Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:				Indicators for Problematic Soils	
	Histosol (A1)		Stripped Matrix (S6)		2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Histic Epipedon (A2)		Dark Surface (S7)(LRR R,MLRA 149B)		Coast Prairie Redox (A16)
	Black Histic (A3)		Polyvalve Below Surface (S8) (LRR R, MLRA 149B)		5 cm Mucky Peat (S3) (LRR K, L, R)
	Hydrogen Sulfide (A4)				Dark Surface (S7) (LRR K, L, M)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Polyvalve Below Surface (S8) (LRR K, L)
	Depleted Below Dark Surface (A11)		Loamy Mucky Mineral (F1)		Thin Dark Surface (S9) (LRR K, L)
	Thick Dark Surface (A12)		Loamy Gleyed Matrix (F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	Sandy Mucky Mineral (S1)		Depleted Matrix (F3)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Sandy Gleyed Matrix (S4)		Redox Dark Surface (F6)		Red Parent Material (F21)
	Sandy Redox (S5)		Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
			Redox Depressions (F8)		Other (Explain in Remarks)

Restrictive Layer (if observed)

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No _____ X _____

Remarks:

Site: 816 N. Lallendorf Road		City/County: Oregon, Lucas County		Sampling Date: 10/11/2012	
Applicant/Owner: Oregon Clean Energy LLC		State: OH		Sampling Point: DP-2	
Investigator(s): V. Tremante		Section, Township, Range:			
Landform: (hillslope, terrace, etc.): low terrace		Local relief (concave, convex, none): None		Slope (%):	
Subregion (LLR or MLRA): LLR L		Lat. 41d 40m 3.600s		Long. -83d 26m 52.200s Datum:	
Soil Map Unit Name: Latty Silty Clay		NWI Classification: N/A			
Are climatic/hydrologic conditions on the site typical for time of year? Yes X No (If no, explain in the Remarks)					
Are Vegetation X Soil X or Hydrology significantly disturbed?					
Are Vegetation Soil or Hydrology naturally problematic?					
Are Normal Circumstances Present? Yes X No (If needed, explain any answers in Remarks)					
SUMMARY OF FINDINGS					
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					
If yes, optional Weland Site ID:					
Remarks: Agriculture row crops have disturbed the soil and vegetation layers. Though ditches exist within the site and have likely affected the site hydrology, they are a permanent alteration and have been in place for sufficient time that current conditions would be normal.					
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (check all that apply)				Secondary Indicators	
	Surface Water (A1)		Water Stained Leaves (B9)		Surface Soil Cracks (B6)
	High Water Table (A2)		Aquatic Fauna (B13)		Drainage Patterns (B10)
	Saturation (A3)		Marl Deposits (B15)		Moss Tim Lines (B6)
	Water Marks (B1)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
X	Drift Deposits (B3)				Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)		Presence of Reduced Iron (C4)	X	Stunted or Stressed Plants (D1)
	Iron Deposits (B5)		Recent Iron Reduction in Tilled Soil (C6)		Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)				Shallow Aquitard (D3)
			Thin Muck Surface (C7)		Microtopographic Relief (D4)
			Other (Explain in Remarks)		FAC-Neutral Test (D5)
	Sparsely Vegetated Concave Surface (B8)				
Field Observations:					
Surface Water Present? Yes No X Depth (inches)					
Water Table Present? Yes No X Depth (inches)					
Saturation Present? Yes No X Depth (inches)					
Wetland Hydrology Present? Yes X No					
Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Drift deposits were primarily of chunks of coarse bark with source unknown as there were no coarse bark trees in or around the site. They could be a result of a flash flood event and not represent a true hydrologic indicator. Additionally, in perimeter areas around the field stunted soybeans would occur in areas where there was heavier or taller woody vegetation possibly from shade or water competition or both. Stunted vegetation therefore may not be a true hydrologic inticator.					

VEGETATION

Sampling Point: DP-2

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet				
1.					Number of dominant species that are OBL, FACW, or FAC: 0 (A)				
2.					Total number of dominant species across all strata: 3 (B)				
3.					Percent of dominant species that are OBL, FACW, or FAC: 0% (A/B)				
4.					Prevalence Index Worksheet:				
5.					Total % cover of:				
6.					OBL species	0	x	1	0
7.					FACW species	0	x	2	0
					FAC species	0	x	3	0
					FACU species	20	x	4	80
					UPL species	30.1	x	5	150.5
					Column Totals:	50.1	(A)		230.5 (B)
					Prevalence Index: 4.6 (B/A)				
					Hydrophytic Vegetation Indicators:				
					Rapid Test for Hydrophytic Vegetation				
					Dominance Test is >50%				
					Prevalence Index is ≤3.0*				
					Morphological Adaptations*				
					Problematic Hydrophytic Vegetation*				
					* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic				
					Definitions of Vegetation Strata:				
					Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height				
					Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1M) tall.				
					Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.				
					Woody Vines - All woody vines greater than 3.28 ft in height.				
					Hydrophytic Vegetaion Present?				
					Yes		No	X	

Shrub Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status
1. <i>Ailanthus altissima</i>	15-ft radius	0.1	Y	UPL
2.				
3.				
4.				
5.				
6.				
7.				
		0.1	Total Cover	

Herb Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status
1. <i>Chamaesyce maculata</i>	5-ft radius	15	Y	FACU
2. <i>Lepidium campestre</i>		30	Y	UPL
3. <i>Oxalis corniculata</i>		5	N	FACU
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		50	Total Cover	

Woody Vine Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status
1.				
2.				
3.				
4.				
		0	Total Cover	

Remarks: Photo 2. Agriculture row crops have disturbed the vegetation. Undisturbed reference areas greater than 1 year old with similar hydrology and adjacent to the ditches show a predominance of upland species. See DP-13

SOIL

Sampling Point: DP-2

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

Depth	Matrix		Redox Features					
(inches)	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-14	10YR5/2	100	None					

* Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:				Indicators for Problematic Soils	
	Histosol (A1)		Stripped Matrix (S6)		2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Histic Epipedon (A2)		Dark Surface (S7)(LRR R,MLRA 149B)		Coast Prairie Redox (A16)
	Black Histic (A3)		Polyvalve Below Surface (S8) (LRR R, MLRA 149B)		5 cm Mucky Peat (S3) (LRR K, L, R)
	Hydrogen Sulfide (A4)				Dark Surface (S7) (LRR K, L, M)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Polyvalve Below Surface (S8) (LRR K, L)
	Depleted Below Dark Surface (A11)		Loamy Mucky Mineral (F1)		Thin Dark Surface (S9) (LRR K, L)
	Thick Dark Surface (A12)		Loamy Gleyed Matrix (F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	Sandy Mucky Mineral (S1)		Depleted Matrix (F3)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Sandy Gleyed Matrix (S4)		Redox Dark Surface (F6)		Red Parent Material (F21)
	Sandy Redox (S5)		Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
			Redox Depressions (F8)		Other (Explain in Remarks)

Restrictive Layer (if observed)

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒ X _____

Remarks: No redox concentrations.

Site: <u>816 N. Lallendorf Road</u>		City/County: <u>Oregon, Lucas County</u>		Sampling Date: <u>10/11/2012</u>	
Applicant/Owner: <u>Oregon Clean Energy LLC</u>		State: <u>OH</u>		Sampling Point: <u>DP-3</u>	
Investigator(s): <u>V. Tremante</u>		Section, Township, Range: _____			
Landform: (hillslope, terrace, etc.): <u>low terrace</u>		Local relief (concave, convex, none): <u>None</u>		Slope (%): _____	
Subregion (LLR or MLRA): <u>LLR L</u>		Lat. <u>41d 40m 2.399s</u>		Long. <u>-83d 26m 49.799s</u> Datum: _____	
Soil Map Unit Name: <u>Latty silty clay</u>		NW1 Classification: <u>None</u>			
Are climatic/hydrologic conditions on the site typical for time of year? Yes <u>X</u> No _____ (If no, explain in the Remarks)					
Are Vegetation <u>X</u> Soil <u>X</u> or Hydrology _____ significantly disturbed?					
Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic?					
Are Normal Circumstances Present? Yes <u>X</u> No _____ (If needed, explain any answers in Remarks)					
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>		Is the Sampled Area within a Wetland?			
Hydric Soil Present? Yes _____ No _____		Yes _____ No <u>X</u>			
Wetland Hydrology Present? Yes _____ No <u>X</u>		If yes, optional Weland Site ID: _____			
Remarks: Agriculture row crops have disturbed the soil and vegetation layers. Though ditches exist within the site and have likely affected the site hydrology, they are a permanent alteration and have been in place for sufficient time that current conditions would be normal.					
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (check all that apply)				Secondary Indicators	
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water Stained Leaves (B9)	<input type="checkbox"/>	Surface Soil Cracks (B6)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Aquatic Fauna (B13)	<input type="checkbox"/>	Drainage Patterns (B10)
<input type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Marl Deposits (B15)	<input type="checkbox"/>	Moss Tim Lines (B6)
<input type="checkbox"/>	Water Marks (B1)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Dry-Season Water Table (C2)
<input type="checkbox"/>	Sediment Deposits (B2)	<input type="checkbox"/>	Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/>	Crayfish Burrows (C8)
<input type="checkbox"/>	Drift Deposits (B3)			<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Stunted or Stressed Plants (D1)
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soil (C6)	<input type="checkbox"/>	Geomorphic Position (D2)
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/>	Shallow Aquitard (D3)
<input type="checkbox"/>		<input type="checkbox"/>	Thin Muck Surface (C7)	<input type="checkbox"/>	Microtopographic Relief (D4)
<input type="checkbox"/>		<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	FAC-Neutral Test (D5)
<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)				
Field Observations:					
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
			Wetland Hydrology Present? Yes _____ No <u>X</u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Normal rainfall for the year and above normal rain fall for the previous 3 months according to WETS.					

VEGETATION

Sampling Point: DP-3

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1.					Number of dominant species that are OBL, FACW, or FAC: 0 (A)	
2.					Total number of dominant species across all strata: 1 (B)	
3.					Percent of dominant species that are OBL, FACW, or FAC: 0% (A/B)	
4.					Prevalence Index Worksheet:	
5.					Total % cover of:	
6.					OBL species 0 x 1 0	
7.					FACW species 0 x 2 0	
					FAC species 0 x 3 0	
					FACU species 0 x 4 0	
					UPL species 100 x 5 500	
					Column Totals: 100 (A) 500 (B)	
					Prevalence Index: 5.0 (B/A)	
					Hydrophytic Vegetation Indicators:	
					Rapid Test for Hydrophytic Vegetation	
					Dominance Test is >50%	
					Prevalence Index is ≤3.0*	
					Morphological Adaptations*	
					Problematic Hydrophytic Vegetation*	
					* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
					Definitions of Vegetation Strata:	
					Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height	
					Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1M) tall.	
					Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
					Woody Vines - All woody vines greater than 3.28 ft in height.	
					Hydrophytic Vegetaion Present?	
					Yes No X	

Remarks: Photo 3. Agriculture row crops have disturbed the vegetation. Undisturbed reference areas greater than 1 year old with similar hydrology and adjacent to the ditches show a predominance of upland species. See DP-13

SOIL

Sampling Point: DP-3

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

Depth	Matrix		Redox Features					
(inches)	Color	%	Color	%	Type*	Loc**	Texture	Remarks
None								

* Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:				Indicators for Problematic Soils	
	Histosol (A1)		Stripped Matrix (S6)		2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Histic Epipedon (A2)		Dark Surface (S7)(LRR R,MLRA 149B)		Coast Prairie Redox (A16)
	Black Histic (A3)		Polyvalve Below Surface (S8) (LRR R, MLRA 149B)		5 cm Mucky Peat (S3) (LRR K, L, R)
	Hydrogen Sulfide (A4)				Dark Surface (S7) (LRR K, L, M)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Polyvalve Below Surface (S8) (LRR K, L)
	Depleted Below Dark Surface (A11)		Loamy Mucky Mineral (F1)		Thin Dark Surface (S9) (LRR K, L)
	Thick Dark Surface (A12)		Loamy Gleyed Matrix (F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	Sandy Mucky Mineral (S1)		Depleted Matrix (F3)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Sandy Gleyed Matrix (S4)		Redox Dark Surface (F6)		Red Parent Material (F21)
	Sandy Redox (S5)		Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
			Redox Depressions (F8)		Other (Explain in Remarks)

Restrictive Layer (if observed)

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: No soil pit excavated.

Site: <u>816 N. Lallendorf Road</u>		City/County: <u>Oregon, Lucas County</u>		Sampling Date: <u>10/11/2012</u>	
Applicant/Owner: <u>Oregon Clean Energy LLC</u>		State: <u>OH</u>		Sampling Point: <u>DP-4</u>	
Investigator(s): <u>V. Tremante</u>		Section, Township, Range: _____			
Landform: (hillslope, terrace, etc.): <u>low terrace</u>		Local relief (concave, convex, none): <u>None</u>		Slope (%): _____	
Subregion (LLR or MLRA): <u>LLR L</u>		Lat. <u>41d 40m 0.00s</u>		Long. <u>-83d 26m 46.799s</u> Datum: _____	
Soil Map Unit Name: <u>Fulton silty clay loam, 0 to 2 percent slope</u>				NW1 Classification: <u>None</u>	
Are climatic/hydrologic conditions on the site typical for time of year? Yes <u>X</u> No _____ (If no, explain in the Remarks)					
Are Vegetation <u>X</u> Soil <u>X</u> or Hydrology _____ significantly disturbed?					
Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic?					
Are Normal Circumstances Present? Yes <u>X</u> No _____ (If needed, explain any answers in Remarks)					
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>		Is the Sampled Area within a Wetland?			
Hydric Soil Present? Yes _____ No <u>X</u>		Yes _____ No <u>X</u>			
Wetland Hydrology Present? Yes _____ No <u>X</u>		If yes, optional Weland Site ID: _____			
Remarks: Agriculture row crops have disturbed the soil and vegetation layers. Though ditches exist within the site and have likely affected the site hydrology, they are a permanent alteration and have been in place for sufficient time that current conditions would be normal.					
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (check all that apply)				Secondary Indicators	
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water Stained Leaves (B9)	<input type="checkbox"/>	Surface Soil Cracks (B6)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Aquatic Fauna (B13)	<input type="checkbox"/>	Drainage Patterns (B10)
<input type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Marl Deposits (B15)	<input type="checkbox"/>	Moss Tim Lines (B6)
<input type="checkbox"/>	Water Marks (B1)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Dry-Season Water Table (C2)
<input type="checkbox"/>	Sediment Deposits (B2)	<input type="checkbox"/>	Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/>	Crayfish Burrows (C8)
<input type="checkbox"/>	Drift Deposits (B3)			<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Stunted or Stressed Plants (D1)
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soil (C6)	<input type="checkbox"/>	Geomorphic Position (D2)
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/>	Shallow Aquitard (D3)
<input type="checkbox"/>		<input type="checkbox"/>	Thin Muck Surface (C7)	<input type="checkbox"/>	Microtopographic Relief (D4)
<input type="checkbox"/>		<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	FAC-Neutral Test (D5)
<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)				
Field Observations:					
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches)			
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches)			
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches)			
			Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Normal rainfall for the year and above normal rain fall for the previous 3 months according to WETS.					

VEGETATION

Sampling Point: DP-4

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1.					Number of dominant species that are OBL, FACW, or FAC: 0 (A)	
2.					Total number of dominant species across all strata: 1 (B)	
3.					Percent of dominant species that are OBL, FACW, or FAC: 0% (A/B)	
4.					Prevalence Index Worksheet:	
5.					Total % cover of:	
6.					OBL species 0 x 1 0	
7.					FACW species 0 x 2 0	
					FAC species 0 x 3 0	
					FACU species 0 x 4 0	
					UPL species 100 x 5 500	
					Column Totals: 100 (A) 500 (B)	
					Prevalence Index: 5.0 (B/A)	
					Hydrophytic Vegetation Indicators:	
					Rapid Test for Hydrophytic Vegetation	
					Dominance Test is >50%	
					Prevalence Index is ≤3.0*	
					Morphological Adaptations*	
					Problematic Hydrophytic Vegetation*	
					* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
					Definitions of Vegetation Strata:	
					Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height	
					Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1M) tall.	
					Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
					Woody Vines - All woody vines greater than 3.28 ft in height.	
					Hydrophytic Vegetaion Present?	
					Yes No X	

Remarks: Photo 4. Agriculture row crops have disturbed the vegetation. Undisturbed reference areas greater than 1 year old with similar hydrology and adjacent to the ditches show a predominance of upland species. See DP-13

SOIL

Sampling Point: DP-4

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

Depth	Matrix		Redox Features					
(inches)	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-11	10YR4/1	100	None				clay loam	
11-14	10YR4/2	75	10YR4/6	25	C	M	clay loam	

* Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:				Indicators for Problematic Soils	
	Histosol (A1)		Stripped Matrix (S6)		2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Histic Epipedon (A2)		Dark Surface (S7)(LRR R,MLRA 149B)		Coast Prairie Redox (A16)
	Black Histic (A3)		Polyvalve Below Surface (S8) (LRR R, MLRA 149B)		5 cm Mucky Peat (S3) (LRR K, L, R)
	Hydrogen Sulfide (A4)				Dark Surface (S7) (LRR K, L, M)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Polyvalve Below Surface (S8) (LRR K, L)
	Depleted Below Dark Surface (A11)		Loamy Mucky Mineral (F1)		Thin Dark Surface (S9) (LRR K, L)
	Thick Dark Surface (A12)		Loamy Gleyed Matrix (F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	Sandy Mucky Mineral (S1)		Depleted Matrix (F3)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Sandy Gleyed Matrix (S4)		Redox Dark Surface (F6)		Red Parent Material (F21)
	Sandy Redox (S5)		Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
			Redox Depressions (F8)		Other (Explain in Remarks)

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: No redox concentrations in top 10 inches.

Site: <u>816 N. Lallendorf Road</u>		City/County: <u>Oregon, Lucas County</u>		Sampling Date: <u>10/11/2012</u>	
Applicant/Owner: <u>Oregon Clean Energy LLC</u>		State: <u>OH</u>		Sampling Point: <u>DP-5</u>	
Investigator(s): <u>V. Tremante</u>		Section, Township, Range: _____			
Landform: (hillslope, terrace, etc.): <u>low terrace</u>		Local relief (concave, convex, none): <u>None</u>		Slope (%): _____	
Subregion (LLR or MLRA): <u>LLR L</u>		Lat. <u>41d 40m 3.600s</u>		Long. <u>-83d 26m 40.799s</u> Datum: _____	
Soil Map Unit Name: <u>Latty silty clay</u>		NWI Classification: <u>None</u>			
Are climatic/hydrologic conditions on the site typical for time of year? Yes <u>X</u> No _____ (If no, explain in the Remarks)					
Are Vegetation <u>X</u> Soil <u>X</u> or Hydrology _____ significantly disturbed?					
Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic?					
Are Normal Circumstances Present? Yes <u>X</u> No _____ (If needed, explain any answers in Remarks)					
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>		Is the Sampled Area within a Wetland?			
Hydric Soil Present? Yes _____ No <u>X</u>		Yes _____ No <u>X</u>			
Wetland Hydrology Present? Yes _____ No <u>X</u>		If yes, optional Wetland Site ID: _____			
Remarks: Agriculture row crops have disturbed the soil and vegetation layers. Though ditches exist within the site and have likely affected the site hydrology, they are a permanent alteration and have been in place for sufficient time that current conditions would be normal.					
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (check all that apply)				Secondary Indicators	
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water Stained Leaves (B9)	<input type="checkbox"/>	Surface Soil Cracks (B6)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Aquatic Fauna (B13)	<input type="checkbox"/>	Drainage Patterns (B10)
<input type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Marl Deposits (B15)	<input type="checkbox"/>	Moss Tim Lines (B6)
<input type="checkbox"/>	Water Marks (B1)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Dry-Season Water Table (C2)
<input type="checkbox"/>	Sediment Deposits (B2)	<input type="checkbox"/>	Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/>	Crayfish Burrows (C8)
<input type="checkbox"/>	Drift Deposits (B3)			<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Stunted or Stressed Plants (D1)
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soil (C6)	<input type="checkbox"/>	Geomorphic Position (D2)
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/>	Shallow Aquitard (D3)
<input type="checkbox"/>		<input type="checkbox"/>	Thin Muck Surface (C7)	<input type="checkbox"/>	Microtopographic Relief (D4)
<input type="checkbox"/>		<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	FAC-Neutral Test (D5)
<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)				
Field Observations:					
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Water Table Present?	Yes <u>X</u> No _____	Depth (inches)	_____		
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
			Wetland Hydrology Present? Yes _____ No <u>X</u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Normal rainfall for the year and above normal rain fall for the previous 3 months according to WETS.					

VEGETATION

Sampling Point: DP-5

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet				
1.					Number of dominant species that are OBL, FACW, or FAC: 0 (A)				
2.					Total number of dominant species across all strata: 1 (B)				
3.					Percent of dominant species that are OBL, FACW, or FAC: 0% (A/B)				
4.					Prevalence Index Worksheet:				
5.					Total % cover of:				
6.					OBL species	0	x	1	0
7.					FACW species	0	x	2	0
					FAC species	0	x	3	0
					FACU species	0	x	4	0
					UPL species	100	x	5	500
					Column Totals:	100	(A)		500 (B)
					Prevalence Index: 5.0 (B/A)				
					Hydrophytic Vegetation Indicators:				
					Rapid Test for Hydrophytic Vegetation				
					Dominance Test is >50%				
					Prevalence Index is ≤3.0*				
					Morphological Adaptations*				
					Problematic Hydrophytic Vegetation*				
					* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic				
					Definitions of Vegetation Strata:				
					Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height				
					Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1M) tall.				
					Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.				
					Woody Vines - All woody vines greater than 3.28 ft in height.				
					Hydrophytic Vegetaion Present?				
					Yes		No	X	

Remarks: Photo 5. Agriculture row crops have disturbed the vegetation. Undisturbed reference areas greater than 1 year old with similar hydrology and adjacent to the ditches show a predominance of upland species. See DP-13

SOIL

Sampling Point: DP-5

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

Depth	Matrix		Redox Features					
(inches)	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-14	10YR3/2	100	None				Silty clay	

* Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:				Indicators for Problematic Soils	
	Histosol (A1)		Stripped Matrix (S6)		2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Histic Epipedon (A2)		Dark Surface (S7)(LRR R,MLRA 149B)		Coast Prairie Redox (A16)
	Black Histic (A3)	X	Polyvalve Below Surface (S8) (LRR R, MLRA 149B)		5 cm Mucky Peat (S3) (LRR K, L, R)
	Hydrogen Sulfide (A4)				Dark Surface (S7) (LRR K, L, M)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Polyvalve Below Surface (S8) (LRR K, L)
	Depleted Below Dark Surface (A11)		Loamy Mucky Mineral (F1)		Thin Dark Surface (S9) (LRR K, L)
	Thick Dark Surface (A12)		Loamy Gleyed Matrix (F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	Sandy Mucky Mineral (S1)	X	Depleted Matrix (F3)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Sandy Gleyed Matrix (S4)		Redox Dark Surface (F6)		Red Parent Material (F21)
	Sandy Redox (S5)		Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
			Redox Depressions (F8)		Other (Explain in Remarks)

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Site: <u>816 N. Lallendorf Road</u>		City/County: <u>Oregon, Lucas County</u>		Sampling Date: <u>10/11/2012</u>	
Applicant/Owner: <u>Oregon Clean Energy LLC</u>		State: <u>OH</u>		Sampling Point: <u>DP-6</u>	
Investigator(s): <u>V. Tremante</u>		Section, Township, Range: _____			
Landform: (hillslope, terrace, etc.): <u>low terrace</u>		Local relief (concave, convex, none): <u>None</u>		Slope (%): _____	
Subregion (LLR or MLRA): <u>LLR L</u>		Lat. <u>41d 40m 1.200s</u>		Long. <u>83d 26m 36.000s</u> Datum: _____	
Soil Map Unit Name: <u>Latty silty clay</u>		NW1 Classification: <u>None</u>			
Are climatic/hydrologic conditions on the site typical for time of year? Yes <u>X</u> No _____ (If no, explain in the Remarks)					
Are Vegetation <u>X</u> Soil <u>X</u> or Hydrology _____ significantly disturbed?					
Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic?					
Are Normal Circumstances Present? Yes <u>X</u> No _____ (If needed, explain any answers in Remarks)					
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>		Is the Sampled Area within a Wetland?			
Hydric Soil Present? Yes <u>X</u> No _____		Yes _____ No <u>X</u>			
Wetland Hydrology Present? Yes _____ No <u>X</u>		If yes, optional Wetland Site ID: _____			
Remarks: Agriculture row crops have disturbed the soil and vegetation layers. Though ditches exist within the site and have likely affected the site hydrology, they are a permanent alteration and have been in place for sufficient time that current conditions would be normal.					
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (check all that apply)				Secondary Indicators	
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water Stained Leaves (B9)	<input type="checkbox"/>	Surface Soil Cracks (B6)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Aquatic Fauna (B13)	<input type="checkbox"/>	Drainage Patterns (B10)
<input type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Marl Deposits (B15)	<input type="checkbox"/>	Moss Tim Lines (B6)
<input type="checkbox"/>	Water Marks (B1)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Dry-Season Water Table (C2)
<input type="checkbox"/>	Sediment Deposits (B2)	<input type="checkbox"/>	Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/>	Crayfish Burrows (C8)
<input type="checkbox"/>	Drift Deposits (B3)			<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Stunted or Stressed Plants (D1)
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soil (C6)	<input type="checkbox"/>	Geomorphic Position (D2)
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/>	Shallow Aquitard (D3)
<input type="checkbox"/>		<input type="checkbox"/>	Thin Muck Surface (C7)	<input type="checkbox"/>	Microtopographic Relief (D4)
<input type="checkbox"/>		<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	FAC-Neutral Test (D5)
<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)				
Field Observations:					
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
			Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Normal rainfall for the year and above normal rain fall for the previous 3 months according to WETS.					

VEGETATION

Sampling Point: DP-6

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1.					Number of dominant species that are OBL, FACW, or FAC: 0 (A)	
2.					Total number of dominant species across all strata: 1 (B)	
3.					Percent of dominant species that are OBL, FACW, or FAC: 0% (A/B)	
4.					Prevalence Index Worksheet:	
5.					Total % cover of:	
6.					OBL species 0 x 1 0	
7.					FACW species 0 x 2 0	
					FAC species 0 x 3 0	
					FACU species 0 x 4 0	
					UPL species 100 x 5 500	
					Column Totals: 100 (A) 500 (B)	
					Prevalence Index: 5.0 (B/A)	
					Hydrophytic Vegetation Indicators:	
					Rapid Test for Hydrophytic Vegetation	
					Dominance Test is >50%	
					Prevalence Index is ≤3.0*	
					Morphological Adaptations*	
					Problematic Hydrophytic Vegetation*	
					* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
					Definitions of Vegetation Strata:	
					Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height	
					Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1M) tall.	
					Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
					Woody Vines - All woody vines greater than 3.28 ft in height.	
					Hydrophytic Vegetaion Present?	
					Yes No X	

Remarks: Photo 6. Agriculture row crops have disturbed the vegetation. Undisturbed reference areas greater than 1 year old with similar hydrology and adjacent to the ditches show a predominance of upland species. See DP-13

SOIL

Sampling Point: DP-6

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

Depth	Matrix		Redox Features					
(inches)	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-5	10YR3/2	100	None				Silty clay	
5-11	10YR3/2	95%	10YR4/1	5	C	M	Silty clay	
11-14	10YR5/1	70	10YR4/6	30	C	M	Silty clay	

* Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Soils

	Histosol (A1)		Stripped Matrix (S6)		2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Histic Epipedon (A2)		Dark Surface (S7)(LRR R,MLRA 149B)		Coast Prairie Redox (A16)
	Black Histic (A3)	X	Polyvalve Below Surface (S8) (LRR R, MLRA 149B)		5 cm Mucky Peat (S3) (LRR K, L, R)
	Hydrogen Sulfide (A4)				Dark Surface (S7) (LRR K, L, M)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Polyvalve Below Surface (S8) (LRR K, L)
	Depleted Below Dark Surface (A11)		Loamy Mucky Mineral (F1)		Thin Dark Surface (S9) (LRR K, L)
	Thick Dark Surface (A12)		Loamy Gleyed Matrix (F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	Sandy Mucky Mineral (S1)	X	Depleted Matrix (F3)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Sandy Gleyed Matrix (S4)		Redox Dark Surface (F6)		Red Parent Material (F21)
	Sandy Redox (S5)		Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
			Redox Depressions (F8)		Other (Explain in Remarks)

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Site: <u>816 N. Lallendorf Road</u>		City/County: <u>Oregon, Lucas County</u>		Sampling Date: <u>10/11/2012</u>	
Applicant/Owner: <u>Oregon Clean Energy LLC</u>		State: <u>OH</u>		Sampling Point: <u>DP-7</u>	
Investigator(s): <u>V. Tremante</u>		Section, Township, Range: _____			
Landform: (hillslope, terrace, etc.): <u>low terrace</u>		Local relief (concave, convex, none): <u>None</u>		Slope (%): _____	
Subregion (LLR or MLRA): <u>LLR L</u>		Lat. <u>41d 40m 3.600s</u>		Long. <u>83m 26s 30.00s</u> Datum: _____	
Soil Map Unit Name: <u>Latty silty clay</u>		NW1 Classification: <u>None</u>			
Are climatic/hydrologic conditions on the site typical for time of year? Yes <u>X</u> No _____ (If no, explain in the Remarks)					
Are Vegetation <u>X</u> Soil <u>X</u> or Hydrology _____ significantly disturbed?					
Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic?					
Are Normal Circumstances Present? Yes <u>X</u> No _____ (If needed, explain any answers in Remarks)					
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>		Is the Sampled Area within a Wetland?			
Hydric Soil Present? Yes _____ No _____		Yes _____ No <u>X</u>			
Wetland Hydrology Present? Yes _____ No <u>X</u>		If yes, optional Weland Site ID: _____			
Remarks: Agriculture row crops have disturbed the soil and vegetation layers. Though ditches exist within the site and have likely affected the site hydrology, they are a permanent alteration and have been in place for sufficient time that current conditions would be normal.					
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (check all that apply)				Secondary Indicators	
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water Stained Leaves (B9)	<input type="checkbox"/>	Surface Soil Cracks (B6)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Aquatic Fauna (B13)	<input type="checkbox"/>	Drainage Patterns (B10)
<input type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Marl Deposits (B15)	<input type="checkbox"/>	Moss Tim Lines (B6)
<input type="checkbox"/>	Water Marks (B1)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Dry-Season Water Table (C2)
<input type="checkbox"/>	Sediment Deposits (B2)	<input type="checkbox"/>	Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/>	Crayfish Burrows (C8)
<input type="checkbox"/>	Drift Deposits (B3)			<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Stunted or Stressed Plants (D1)
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soil (C6)	<input type="checkbox"/>	Geomorphic Position (D2)
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/>	Shallow Aquitard (D3)
<input type="checkbox"/>		<input type="checkbox"/>	Thin Muck Surface (C7)	<input type="checkbox"/>	Microtopographic Relief (D4)
<input type="checkbox"/>		<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	FAC-Neutral Test (D5)
<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)				
Field Observations:					
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
			Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Normal rainfall for the year and above normal rain fall for the previous 3 months according to WETS.					

VEGETATION

Sampling Point: DP-7

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1.					Number of dominant species that are OBL, FACW, or FAC: 0 (A)	
2.					Total number of dominant species across all strata: 1 (B)	
3.					Percent of dominant species that are OBL, FACW, or FAC: 0% (A/B)	
4.					Prevalence Index Worksheet:	
5.					Total % cover of:	
6.					OBL species 0 x 1 0	
7.					FACW species 0 x 2 0	
					FAC species 0 x 3 0	
					FACU species 0 x 4 0	
					UPL species 100 x 5 500	
					Column Totals: 100 (A) 500 (B)	
					Prevalence Index: 5.0 (B/A)	
					Hydrophytic Vegetation Indicators:	
					Rapid Test for Hydrophytic Vegetation	
					Dominance Test is >50%	
					Prevalence Index is ≤3.0*	
					Morphological Adaptations*	
					Problematic Hydrophytic Vegetation*	
					* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
					Definitions of Vegetation Strata:	
					Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height	
					Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1M) tall.	
					Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
					Woody Vines - All woody vines greater than 3.28 ft in height.	
					Hydrophytic Vegetaion Present?	
					Yes No X	

Remarks: Photo 7. Agriculture row crops have disturbed the vegetation. Undisturbed reference areas greater than 1 year old with similar hydrology and adjacent to the ditches show a predominance of upland species. See DP-13

SOIL

Sampling Point: DP-7

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

Depth	Matrix		Redox Features					
(inches)	Color	%	Color	%	Type*	Loc**	Texture	Remarks
None								No Soil Pit Excavation

* Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:				Indicators for Problematic Soils	
	Histosol (A1)		Stripped Matrix (S6)		2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Histic Epipedon (A2)		Dark Surface (S7)(LRR R,MLRA 149B)		Coast Prairie Redox (A16)
	Black Histic (A3)		Polyvalve Below Surface (S8) (LRR R, MLRA 149B)		5 cm Mucky Peat (S3) (LRR K, L, R)
	Hydrogen Sulfide (A4)				Dark Surface (S7) (LRR K, L, M)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Polyvalve Below Surface (S8) (LRR K, L)
	Depleted Below Dark Surface (A11)		Loamy Mucky Mineral (F1)		Thin Dark Surface (S9) (LRR K, L)
	Thick Dark Surface (A12)		Loamy Gleyed Matrix (F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	Sandy Mucky Mineral (S1)		Depleted Matrix (F3)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Sandy Gleyed Matrix (S4)		Redox Dark Surface (F6)		Red Parent Material (F21)
	Sandy Redox (S5)		Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
			Redox Depressions (F8)		Other (Explain in Remarks)

Restrictive Layer (if observed)

Type:

Depth (inches):

Hydric Soil Present? Yes No

Remarks: No soil pit excavation

Site: <u>816 N. Lallendorf Road</u>		City/County: <u>Oregon, Lucas County</u>		Sampling Date: <u>10/11/2012</u>	
Applicant/Owner: <u>Oregon Clean Energy LLC</u>		State: <u>OH</u>		Sampling Point: <u>DP-8</u>	
Investigator(s): <u>V. Tremante</u>		Section, Township, Range: _____			
Landform: (hillslope, terrace, etc.): <u>low terrace</u>		Local relief (concave, convex, none): <u>None</u>		Slope (%): _____	
Subregion (LLR or MLRA): <u>LLR L</u>		Lat. <u>41d 40s 1.799s</u>		Long. <u>-83d 26m 25.799s</u> Datum: _____	
Soil Map Unit Name: <u>Latty silty clay</u>		NW1 Classification: <u>None</u>			
Are climatic/hydrologic conditions on the site typical for time of year? Yes <u>X</u> No _____ (If no, explain in the Remarks)					
Are Vegetation <u>X</u> Soil <u>X</u> or Hydrology _____ significantly disturbed?					
Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic?					
Are Normal Circumstances Present? Yes <u>X</u> No _____ (If needed, explain any answers in Remarks)					
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>		Is the Sampled Area within a Wetland?			
Hydric Soil Present? Yes _____ No _____		Yes _____ No <u>X</u>			
Wetland Hydrology Present? Yes _____ No <u>X</u>		If yes, optional Wetland Site ID: _____			
Remarks: Agriculture row crops have disturbed the soil and vegetation layers. Though ditches exist within the site and have likely affected the site hydrology, they are a permanent alteration and have been in place for sufficient time that current conditions would be normal.					
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (check all that apply)				Secondary Indicators	
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water Stained Leaves (B9)	<input type="checkbox"/>	Surface Soil Cracks (B6)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Aquatic Fauna (B13)	<input type="checkbox"/>	Drainage Patterns (B10)
<input type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Marl Deposits (B15)	<input type="checkbox"/>	Moss Tim Lines (B6)
<input type="checkbox"/>	Water Marks (B1)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Dry-Season Water Table (C2)
<input type="checkbox"/>	Sediment Deposits (B2)	<input type="checkbox"/>	Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/>	Crayfish Burrows (C8)
<input type="checkbox"/>	Drift Deposits (B3)			<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Stunted or Stressed Plants (D1)
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soil (C6)	<input type="checkbox"/>	Geomorphic Position (D2)
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/>	Shallow Aquitard (D3)
<input type="checkbox"/>		<input type="checkbox"/>	Thin Muck Surface (C7)	<input type="checkbox"/>	Microtopographic Relief (D4)
<input type="checkbox"/>		<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	FAC-Neutral Test (D5)
<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)				
Field Observations:					
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
			Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Normal rainfall for the year and above normal rain fall for the previous 3 months according to WETS.					

VEGETATION

Sampling Point: DP-8

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet				
1.					Number of dominant species that are OBL, FACW, or FAC: 0 (A)				
2.					Total number of dominant species across all strata: 1 (B)				
3.					Percent of dominant species that are OBL, FACW, or FAC: 0% (A/B)				
4.					Prevalence Index Worksheet:				
5.					Total % cover of:				
6.					OBL species	0	x	1	0
7.					FACW species	0	x	2	0
					FAC species	0	x	3	0
					FACU species	0	x	4	0
					UPL species	100	x	5	500
					Column Totals:	100	(A)		500 (B)
					Prevalence Index: 5.0 (B/A)				
					Hydrophytic Vegetation Indicators:				
					Rapid Test for Hydrophytic Vegetation				
					Dominance Test is >50%				
					Prevalence Index is ≤3.0*				
					Morphological Adaptations*				
					Problematic Hydrophytic Vegetation*				
					* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic				
					Definitions of Vegetation Strata:				
					Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height				
					Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1M) tall.				
					Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.				
					Woody Vines - All woody vines greater than 3.28 ft in height.				
					Hydrophytic Vegetaion Present?				
					Yes		No	X	

Remarks: Photo 8. Agriculture row crops have disturbed the vegetation. Undisturbed reference areas greater than 1 year old with similar hydrology and adjacent to the ditches show a predominance of upland species. See DP-13

SOIL

Sampling Point: DP-8

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

Depth	Matrix		Redox Features					
(inches)	Color	%	Color	%	Type*	Loc**	Texture	Remarks
None								No soil pit excavation

* Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:				Indicators for Problematic Soils	
	Histosol (A1)		Stripped Matrix (S6)		2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Histic Epipedon (A2)		Dark Surface (S7)(LRR R,MLRA 149B)		Coast Prairie Redox (A16)
	Black Histic (A3)		Polyvalve Below Surface (S8) (LRR R, MLRA 149B)		5 cm Mucky Peat (S3) (LRR K, L, R)
	Hydrogen Sulfide (A4)				Dark Surface (S7) (LRR K, L, M)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Polyvalve Below Surface (S8) (LRR K, L)
	Depleted Below Dark Surface (A11)		Loamy Mucky Mineral (F1)		Thin Dark Surface (S9) (LRR K, L)
	Thick Dark Surface (A12)		Loamy Gleyed Matrix (F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	Sandy Mucky Mineral (S1)		Depleted Matrix (F3)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Sandy Gleyed Matrix (S4)		Redox Dark Surface (F6)		Red Parent Material (F21)
	Sandy Redox (S5)		Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
			Redox Depressions (F8)		Other (Explain in Remarks)

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: No soil pit excavation

Site: <u>816 N. Lallendorf Road</u>		City/County: <u>Oregon, Lucas County</u>		Sampling Date: <u>10/11/2012</u>	
Applicant/Owner: <u>Oregon Clean Energy LLC</u>		State: <u>OH</u>		Sampling Point: <u>DP-9</u>	
Investigator(s): <u>V. Tremante</u>		Section, Township, Range: _____			
Landform: (hillslope, terrace, etc.): <u>low terrace</u>		Local relief (concave, convex, none): <u>None</u>		Slope (%): _____	
Subregion (LLR or MLRA): <u>LLR L</u>		Lat. <u>41d 40m 1.799s</u>		Long. <u>-83d 26m 25.799s</u> Datum: _____	
Soil Map Unit Name: <u>Fulton silty clay loam, 0 to 2 percent slope</u>				NWI Classification: <u>None</u>	
Are climatic/hydrologic conditions on the site typical for time of year? Yes <u>X</u> No _____ (If no, explain in the Remarks)					
Are Vegetation <u>X</u>		Soil <u>X</u> or Hydrology _____		significantly disturbed?	
Are Vegetation _____		Soil _____ or Hydrology _____		naturally problematic?	
Are Normal Circumstances Present? Yes <u>X</u> No _____ (If needed, explain any answers in Remarks)					
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>		Is the Sampled Area within a Wetland?			
Hydric Soil Present? Yes _____ No <u>X</u>		Yes _____ No <u>X</u>			
Wetland Hydrology Present? Yes _____ No <u>X</u>		If yes, optional Weland Site ID: _____			
Remarks: Agriculture row crops have disturbed the soil and vegetation layers. Though ditches exist within the site and have likely affected the site hydrology, they are a permanent alteration and have been in place for sufficient time that current conditions would be normal.					
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (check all that apply)				Secondary Indicators	
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water Stained Leaves (B9)	<input type="checkbox"/>	Surface Soil Cracks (B6)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Aquatic Fauna (B13)	<input type="checkbox"/>	Drainage Patterns (B10)
<input type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Marl Deposits (B15)	<input type="checkbox"/>	Moss Tim Lines (B6)
<input type="checkbox"/>	Water Marks (B1)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Dry-Season Water Table (C2)
<input type="checkbox"/>	Sediment Deposits (B2)	<input type="checkbox"/>	Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/>	Crayfish Burrows (C8)
<input type="checkbox"/>	Drift Deposits (B3)			<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Stunted or Stressed Plants (D1)
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soil (C6)	<input type="checkbox"/>	Geomorphic Position (D2)
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/>	Shallow Aquitard (D3)
<input type="checkbox"/>		<input type="checkbox"/>	Thin Muck Surface (C7)	<input type="checkbox"/>	Microtopographic Relief (D4)
<input type="checkbox"/>		<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	FAC-Neutral Test (D5)
<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)				
Field Observations:					
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
			Wetland Hydrology Present? Yes _____ No <u>X</u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Normal rainfall for the year and above normal rain fall for the previous 3 months according to WETS.					

VEGETATION

Sampling Point: DP-9

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet				
1.					Number of dominant species that are OBL, FACW, or FAC: 0 (A)				
2.					Total number of dominant species across all strata: 1 (B)				
3.					Percent of dominant species that are OBL, FACW, or FAC: 0% (A/B)				
4.					Prevalence Index Worksheet:				
5.					Total % cover of:				
6.					OBL species	0	x	1	0
7.					FACW species	0	x	2	0
					FAC species	0	x	3	0
					FACU species	0	x	4	0
					UPL species	100	x	5	500
					Column Totals:	100	(A)		500 (B)
					Prevalence Index: 5.0 (B/A)				
					Hydrophytic Vegetation Indicators:				
					Rapid Test for Hydrophytic Vegetation				
					Dominance Test is >50%				
					Prevalence Index is ≤3.0*				
					Morphological Adaptations*				
					Problematic Hydrophytic Vegetation*				
					* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic				
					Definitions of Vegetation Strata:				
					Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height				
					Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1M) tall.				
					Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.				
					Woody Vines - All woody vines greater than 3.28 ft in height.				
					Hydrophytic Vegetaion Present?				
					Yes		No	X	

Remarks: Photo 9. Agriculture row crops have disturbed the vegetation. Undisturbed reference areas greater than 1 year old with similar hydrology and adjacent to the ditches show a predominance of upland species. See DP-13

SOIL

Sampling Point: DP-9

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

Depth	Matrix		Redox Features					
(inches)	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-14	10YR4/2	100	None				Silty Clay	

* Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:				Indicators for Problematic Soils	
	Histosol (A1)		Stripped Matrix (S6)		2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Histic Epipedon (A2)		Dark Surface (S7)(LRR R,MLRA 149B)		Coast Prairie Redox (A16)
	Black Histic (A3)		Polyvalve Below Surface (S8) (LRR R, MLRA 149B)		5 cm Mucky Peat (S3) (LRR K, L, R)
	Hydrogen Sulfide (A4)				Dark Surface (S7) (LRR K, L, M)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Polyvalve Below Surface (S8) (LRR K, L)
	Depleted Below Dark Surface (A11)		Loamy Mucky Mineral (F1)		Thin Dark Surface (S9) (LRR K, L)
	Thick Dark Surface (A12)		Loamy Gleyed Matrix (F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	Sandy Mucky Mineral (S1)		Depleted Matrix (F3)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Sandy Gleyed Matrix (S4)		Redox Dark Surface (F6)		Red Parent Material (F21)
	Sandy Redox (S5)		Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
			Redox Depressions (F8)		Other (Explain in Remarks)

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: No redox concentrations.

Site: <u>816 N. Lallendorf Road</u>		City/County: <u>Oregon, Lucas County</u>		Sampling Date: <u>10/11/2012</u>	
Applicant/Owner: <u>Oregon Clean Energy LLC</u>		State: <u>OH</u>		Sampling Point: <u>DP-10</u>	
Investigator(s): <u>V. Tremante</u>		Section, Township, Range: _____			
Landform: (hillslope, terrace, etc.): <u>low terrace</u>		Local relief (concave, convex, none): <u>None</u>		Slope (%): _____	
Subregion (LLR or MLRA): <u>LLR L</u>		Lat. <u>41d 40m 6.000s</u>		Long. <u>-83d 26m 22.799s</u> Datum: _____	
Soil Map Unit Name: <u>Latty silty clay</u>		NW1 Classification: <u>None</u>			
Are climatic/hydrologic conditions on the site typical for time of year? Yes <u>X</u> No _____ (If no, explain in the Remarks)					
Are Vegetation <u>X</u> Soil <u>X</u> or Hydrology _____ significantly disturbed?					
Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic?					
Are Normal Circumstances Present? Yes <u>X</u> No _____ (If needed, explain any answers in Remarks)					
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>		Is the Sampled Area within a Wetland?			
Hydric Soil Present? Yes _____ No _____		Yes _____ No <u>X</u>			
Wetland Hydrology Present? Yes _____ No <u>X</u>		If yes, optional Weland Site ID: _____			
Remarks: Agriculture row crops have disturbed the soil and vegetation layers. Though ditches exist within the site and have likely affected the site hydrology, they are a permanent alteration and have been in place for sufficient time that current conditions would be normal.					
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (check all that apply)				Secondary Indicators	
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water Stained Leaves (B9)	<input type="checkbox"/>	Surface Soil Cracks (B6)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Aquatic Fauna (B13)	<input type="checkbox"/>	Drainage Patterns (B10)
<input type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Marl Deposits (B15)	<input type="checkbox"/>	Moss Tim Lines (B6)
<input type="checkbox"/>	Water Marks (B1)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Dry-Season Water Table (C2)
<input type="checkbox"/>	Sediment Deposits (B2)	<input type="checkbox"/>	Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/>	Crayfish Burrows (C8)
<input type="checkbox"/>	Drift Deposits (B3)			<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Stunted or Stressed Plants (D1)
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soil (C6)	<input type="checkbox"/>	Geomorphic Position (D2)
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/>	Shallow Aquitard (D3)
<input type="checkbox"/>		<input type="checkbox"/>	Thin Muck Surface (C7)	<input type="checkbox"/>	Microtopographic Relief (D4)
<input type="checkbox"/>		<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	FAC-Neutral Test (D5)
<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)				
Field Observations:					
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
			Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Normal rainfall for the year and above normal rain fall for the previous 3 months according to WETS.					

VEGETATION

Sampling Point: DP-10

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet				
1.					Number of dominant species that are OBL, FACW, or FAC: 0 (A)				
2.					Total number of dominant species across all strata: 1 (B)				
3.					Percent of dominant species that are OBL, FACW, or FAC: 0% (A/B)				
4.					Prevalence Index Worksheet:				
5.					Total % cover of:				
6.					OBL species	0	x	1	0
7.					FACW species	0	x	2	0
					FAC species	0	x	3	0
					FACU species	0	x	4	0
					UPL species	100	x	5	500
					Column Totals:	100	(A)		500 (B)
					Prevalence Index: 5.0 (B/A)				
					Hydrophytic Vegetation Indicators:				
					Rapid Test for Hydrophytic Vegetation				
					Dominance Test is >50%				
					Prevalence Index is ≤3.0*				
					Morphological Adaptations*				
					Problematic Hydrophytic Vegetation*				
					* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic				
					Definitions of Vegetation Strata:				
					Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height				
					Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1M) tall.				
					Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.				
					Woody Vines - All woody vines greater than 3.28 ft in height.				
					Hydrophytic Vegetaion Present?				
					Yes		No	X	

Remarks: Photo 10. Agriculture row crops have disturbed the vegetation. Undisturbed reference areas greater than 1 year old with similar hydrology and adjacent to the ditches show a predominance of upland species. See DP-13

SOIL

Sampling Point: DP-10

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

Depth	Matrix		Redox Features					
(inches)	Color	%	Color	%	Type*	Loc**	Texture	Remarks
None								No soil pit excavated.

* Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:				Indicators for Problematic Soils	
	Histosol (A1)		Stripped Matrix (S6)		2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Histic Epipedon (A2)		Dark Surface (S7)(LRR R,MLRA 149B)		Coast Prairie Redox (A16)
	Black Histic (A3)		Polyvalve Below Surface (S8) (LRR R, MLRA 149B)		5 cm Mucky Peat (S3) (LRR K, L, R)
	Hydrogen Sulfide (A4)				Dark Surface (S7) (LRR K, L, M)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Polyvalve Below Surface (S8) (LRR K, L)
	Depleted Below Dark Surface (A11)		Loamy Mucky Mineral (F1)		Thin Dark Surface (S9) (LRR K, L)
	Thick Dark Surface (A12)		Loamy Gleyed Matrix (F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	Sandy Mucky Mineral (S1)		Depleted Matrix (F3)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Sandy Gleyed Matrix (S4)		Redox Dark Surface (F6)		Red Parent Material (F21)
	Sandy Redox (S5)		Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
			Redox Depressions (F8)		Other (Explain in Remarks)

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: No soil pit excavated.

Site: <u>816 N. Lallendorf Road</u>		City/County: <u>Oregon, Lucas County</u>		Sampling Date: <u>10/11/2012</u>	
Applicant/Owner: <u>Oregon Clean Energy LLC</u>		State: <u>OH</u>		Sampling Point: <u>DP-11</u>	
Investigator(s): <u>V. Tremante</u>		Section, Township, Range: _____			
Landform: (hillslope, terrace, etc.): <u>low terrace</u>		Local relief (concave, convex, none): <u>None</u>		Slope (%): _____	
Subregion (LLR or MLRA): <u>LLR L</u>		Lat. <u>41d 40m 4.799s</u>		Long. <u>-83d 26m 26.999s</u> Datum: _____	
Soil Map Unit Name: <u>Latty silty clay</u>		NWI Classification: <u>None</u>			
Are climatic/hydrologic conditions on the site typical for time of year? Yes <u>X</u> No _____ (If no, explain in the Remarks)					
Are Vegetation <u>X</u> Soil <u>X</u> or Hydrology _____ significantly disturbed?					
Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic?					
Are Normal Circumstances Present? Yes <u>X</u> No _____ (If needed, explain any answers in Remarks)					
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>		Is the Sampled Area within a Wetland?			
Hydric Soil Present? Yes _____ No _____		Yes _____ No <u>X</u>			
Wetland Hydrology Present? Yes _____ No <u>X</u>		If yes, optional Wetland Site ID: _____			
Remarks: Agriculture row crops have disturbed the soil and vegetation layers. Though ditches exist within the site and have likely affected the site hydrology, they are a permanent alteration and have been in place for sufficient time that current conditions would be normal.					
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (check all that apply)				Secondary Indicators	
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water Stained Leaves (B9)	<input type="checkbox"/>	Surface Soil Cracks (B6)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Aquatic Fauna (B13)	<input type="checkbox"/>	Drainage Patterns (B10)
<input type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Marl Deposits (B15)	<input type="checkbox"/>	Moss Tim Lines (B6)
<input type="checkbox"/>	Water Marks (B1)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Dry-Season Water Table (C2)
<input type="checkbox"/>	Sediment Deposits (B2)	<input type="checkbox"/>	Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/>	Crayfish Burrows (C8)
<input type="checkbox"/>	Drift Deposits (B3)			<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Stunted or Stressed Plants (D1)
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soil (C6)	<input type="checkbox"/>	Geomorphic Position (D2)
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/>	Shallow Aquitard (D3)
<input type="checkbox"/>		<input type="checkbox"/>	Thin Muck Surface (C7)	<input type="checkbox"/>	Microtopographic Relief (D4)
<input type="checkbox"/>		<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	FAC-Neutral Test (D5)
<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)				
Field Observations:					
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
			Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Normal rainfall for the year and above normal rain fall for the previous 3 months according to WETS.					

VEGETATION

Sampling Point: DP-11

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1.					Number of dominant species that are OBL, FACW, or FAC: 0 (A)	
2.					Total number of dominant species across all strata: 1 (B)	
3.					Percent of dominant species that are OBL, FACW, or FAC: 0% (A/B)	
4.					Prevalence Index Worksheet:	
5.					Total % cover of:	
6.					OBL species 0 x 1 0	
7.					FACW species 0 x 2 0	
					FAC species 0 x 3 0	
					FACU species 0 x 4 0	
					UPL species 100 x 5 500	
					Column Totals: 100 (A) 500 (B)	
					Prevalence Index: 5.0 (B/A)	
					Hydrophytic Vegetation Indicators:	
					Rapid Test for Hydrophytic Vegetation	
					Dominance Test is >50%	
					Prevalence Index is ≤3.0*	
					Morphological Adaptations*	
					Problematic Hydrophytic Vegetation*	
					* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
					Definitions of Vegetation Strata:	
					Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height	
					Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1M) tall.	
					Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
					Woody Vines - All woody vines greater than 3.28 ft in height.	
					Hydrophytic Vegetaion Present?	
					Yes No X	

Remarks: Photo 11. Agriculture row crops have disturbed the vegetation. Undisturbed reference areas greater than 1 year old with similar hydrology and adjacent to the ditches show a predominance of upland species. See DP-13

SOIL

Sampling Point: DP-11

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

Depth	Matrix		Redox Features					
(inches)	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-13	10YR4/1	100	None				Silty clay	
13-14	10YR4/2	75	10YR5/6	25	C	M	Silty clay	

* Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:**Indicators for Problematic Soils**

	Histosol (A1)		Stripped Matrix (S6)		2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Histic Epipedon (A2)		Dark Surface (S7)(LRR R,MLRA 149B)		Coast Prairie Redox (A16)
	Black Histic (A3)		Polyvalve Below Surface (S8) (LRR R, MLRA 149B)		5 cm Mucky Peat (S3) (LRR K, L, R)
	Hydrogen Sulfide (A4)				Dark Surface (S7) (LRR K, L, M)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Polyvalve Below Surface (S8) (LRR K, L)
	Depleted Below Dark Surface (A11)		Loamy Mucky Mineral (F1)		Thin Dark Surface (S9) (LRR K, L)
	Thick Dark Surface (A12)		Loamy Gleyed Matrix (F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	Sandy Mucky Mineral (S1)		Depleted Matrix (F3)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Sandy Gleyed Matrix (S4)		Redox Dark Surface (F6)		Red Parent Material (F21)
	Sandy Redox (S5)		Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
			Redox Depressions (F8)		Other (Explain in Remarks)

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: No redox concentrations within the top 6 inches or starting within the top 10 inches.

Site: <u>816 N. Lallendorf Road</u>		City/County: <u>Oregon, Lucas County</u>		Sampling Date: <u>10/11/2012</u>	
Applicant/Owner: <u>Oregon Clean Energy LLC</u>		State: <u>OH</u>		Sampling Point: <u>DP-12</u>	
Investigator(s): <u>V. Tremante</u>		Section, Township, Range: _____			
Landform: (hillslope, terrace, etc.): <u>low terrace</u>		Local relief (concave, convex, none): <u>None</u>		Slope (%): _____	
Subregion (LLR or MLRA): <u>LLR L</u>		Lat. <u>41d 40m 5.399s</u>		Long. <u>-83d 26m 36.000s</u> Datum: _____	
Soil Map Unit Name: <u>Latty silty clay</u>		NW1 Classification: <u>None</u>			
Are climatic/hydrologic conditions on the site typical for time of year? Yes <u>X</u> No _____ (If no, explain in the Remarks)					
Are Vegetation <u>X</u> Soil <u>X</u> or Hydrology _____ significantly disturbed?					
Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic?					
Are Normal Circumstances Present? Yes <u>X</u> No _____ (If needed, explain any answers in Remarks)					
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>		Is the Sampled Area within a Wetland?			
Hydric Soil Present? Yes _____ No <u>X</u>		Yes _____ No <u>X</u>			
Wetland Hydrology Present? Yes _____ No <u>X</u>		If yes, optional Weland Site ID: _____			
Remarks: Agriculture row crops have disturbed the soil and vegetation layers. Though ditches exist within the site and have likely affected the site hydrology, they are a permanent alteration and have been in place for sufficient time that current conditions would be normal.					
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (check all that apply)				Secondary Indicators	
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water Stained Leaves (B9)	<input type="checkbox"/>	Surface Soil Cracks (B6)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Aquatic Fauna (B13)	<input type="checkbox"/>	Drainage Patterns (B10)
<input type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Marl Deposits (B15)	<input type="checkbox"/>	Moss Tim Lines (B6)
<input type="checkbox"/>	Water Marks (B1)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Dry-Season Water Table (C2)
<input type="checkbox"/>	Sediment Deposits (B2)	<input type="checkbox"/>	Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/>	Crayfish Burrows (C8)
<input type="checkbox"/>	Drift Deposits (B3)			<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Stunted or Stressed Plants (D1)
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soil (C6)	<input type="checkbox"/>	Geomorphic Position (D2)
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/>	Shallow Aquitard (D3)
<input type="checkbox"/>		<input type="checkbox"/>	Thin Muck Surface (C7)	<input type="checkbox"/>	Microtopographic Relief (D4)
<input type="checkbox"/>		<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	FAC-Neutral Test (D5)
<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)				
Field Observations:					
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
			Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Normal rainfall for the year and above normal rain fall for the previous 3 months according to WETS.					

VEGETATION

Sampling Point: DP-12

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1.					Number of dominant species that are OBL, FACW, or FAC: 0 (A)	
2.					Total number of dominant species across all strata: 1 (B)	
3.					Percent of dominant species that are OBL, FACW, or FAC: 0% (A/B)	
4.					Prevalence Index Worksheet:	
5.					Total % cover of:	
6.					OBL species 0 x 1 0	
7.					FACW species 0 x 2 0	
					FAC species 0 x 3 0	
					FACU species 0 x 4 0	
					UPL species 100 x 5 500	
					Column Totals: 100 (A) 500 (B)	
					Prevalence Index: 5.0 (B/A)	
					Hydrophytic Vegetation Indicators:	
					Rapid Test for Hydrophytic Vegetation	
					Dominance Test is >50%	
					Prevalence Index is ≤3.0*	
					Morphological Adaptations*	
					Problematic Hydrophytic Vegetation*	
					* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
					Definitions of Vegetation Strata:	
					Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height	
					Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1M) tall.	
					Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
					Woody Vines - All woody vines greater than 3.28 ft in height.	
					Hydrophytic Vegetaion Present?	
					Yes No X	

Remarks: Photo 12. Agriculture row crops have disturbed the vegetation. Undisturbed reference areas greater than 1 year old with similar hydrology and adjacent to the ditches show a predominance of upland species. See DP-13

SOIL

Sampling Point: DP-12

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

Depth	Matrix		Redox Features					
(inches)	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-14	10YR4/1	100	None				Silty clay	

* Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:**Indicators for Problematic Soils**

	Histosol (A1)		Stripped Matrix (S6)		2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Histic Epipedon (A2)		Dark Surface (S7)(LRR R,MLRA 149B)		Coast Prairie Redox (A16)
	Black Histic (A3)		Polyvalve Below Surface (S8) (LRR R, MLRA 149B)		5 cm Mucky Peat (S3) (LRR K, L, R)
	Hydrogen Sulfide (A4)				Dark Surface (S7) (LRR K, L, M)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Polyvalve Below Surface (S8) (LRR K, L)
	Depleted Below Dark Surface (A11)		Loamy Mucky Mineral (F1)		Thin Dark Surface (S9) (LRR K, L)
	Thick Dark Surface (A12)		Loamy Gleyed Matrix (F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	Sandy Mucky Mineral (S1)		Depleted Matrix (F3)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Sandy Gleyed Matrix (S4)		Redox Dark Surface (F6)		Red Parent Material (F21)
	Sandy Redox (S5)		Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
			Redox Depressions (F8)		Other (Explain in Remarks)

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: No redox concentrations within the top 6 inches or starting within the top 10 inches.

Site: <u>816 N. Lallendorf Road</u>		City/County: <u>Oregon, Lucas County</u>		Sampling Date: <u>10/11/2012</u>	
Applicant/Owner: <u>Oregon Clean Energy LLC</u>		State: <u>OH</u>		Sampling Point: <u>DP-13</u>	
Investigator(s): <u>V. Tremante</u>		Section, Township, Range: _____			
Landform: (hillslope, terrace, etc.): <u>low terrace</u>		Local relief (concave, convex, none): <u>None</u>		Slope (%): _____	
Subregion (LLR or MLRA): <u>LLR L</u>		Lat. <u>41d 40m 0.1518s</u>		Long. <u>-83d 26m 52.0584s</u> Datum: _____	
Soil Map Unit Name: <u>Latty silty clay</u>		NWI Classification: <u>None</u>			
Are climatic/hydrologic conditions on the site typical for time of year? Yes <u>X</u> No _____ (If no, explain in the Remarks)					
Are Vegetation _____		Soil _____ or Hydrology _____		significantly disturbed?	
Are Vegetation _____		Soil _____ or Hydrology _____		naturally problematic?	
Are Normal Circumstances Present? Yes <u>X</u> No _____ (If needed, explain any answers in Remarks)					
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes _____ No _____		Is the Sampled Area within a Wetland?			
Hydric Soil Present? Yes _____ No _____		Yes _____ No _____			
Wetland Hydrology Present? Yes _____ No _____		If yes, optional Weland Site ID: _____			
Remarks: Data point represents a typical non-disturbed reference condition for vegetation. Riparian vegetation is several years old and hydrology is similar to data points in the field.					
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (check all that apply)				Secondary Indicators	
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water Stained Leaves (B9)	<input type="checkbox"/>	Surface Soil Cracks (B6)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Aquatic Fauna (B13)	<input type="checkbox"/>	Drainage Patterns (B10)
<input type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Marl Deposits (B15)	<input type="checkbox"/>	Moss Tim Lines (B6)
<input type="checkbox"/>	Water Marks (B1)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Dry-Season Water Table (C2)
<input type="checkbox"/>	Sediment Deposits (B2)	<input type="checkbox"/>	Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/>	Crayfish Burrows (C8)
<input type="checkbox"/>	Drift Deposits (B3)			<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Stunted or Stressed Plants (D1)
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soil (C6)	<input type="checkbox"/>	Geomorphic Position (D2)
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/>	Shallow Aquitard (D3)
<input type="checkbox"/>		<input type="checkbox"/>	Thin Muck Surface (C7)	<input type="checkbox"/>	Microtopographic Relief (D4)
<input type="checkbox"/>		<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	FAC-Neutral Test (D5)
<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)				
Field Observations:					
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches)	_____		
			Wetland Hydrology Present? Yes _____ No <u>X</u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Normal rainfall for the year and above normal rain fall for the previous 3 months according to WETS.					

VEGETATION

Sampling Point: DP-13

Tree Stratum		Plot size: 50x15	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet				
1.	<u>Celtis occidentalis</u>		30	Y	FAC	Number of dominant species that are OBL, FACW, or FAC: 2 (A)				
2.	<u>Morus rubra</u>		20	Y	FACU					
3.	<u>Ailanthus altissima</u>		5	Y	UPL					
4.					#N/A					
5.					#N/A					
6.					#N/A	Total number of dominant species across all strata: 8 (B)				
7.					#N/A	Percent of dominant species that are OBL, FACW, or FAC: 25% (A/B)				
			55	Total Cover		Prevalence Index Worksheet:				
						Total % cover of:				
Shrub Stratum		Plot size: 11x15				OBL species	0	x	1	0
1.	<u>Lonicera maackii</u>		50	Y	UPL	FACW species	1	x	2	2
2.	<u>Cornus drummondii</u>		20	Y	FAC	FAC species	50	x	3	150
3.						FACU species	105	x	4	420
4.						UPL species	55	x	5	275
5.						Column Totals:	211	(A)		847 (B)
6.						Prevalence Index: 4.0 (B/A)				
7.						Hydrophytic Vegetation Indicators:				
			70	Total Cover		Rapid Test for Hydrophytic Vegetation				
Herb Stratum			Plot size:			Dominance Test is >50%				
1.	<u>Poa pratensis</u>		30	Y	FACU	Prevalence Index is ≤3.0*				
2.	<u>Festuca pratensis</u>		20	Y	FACU	Morphological Adaptations*				
3.	<u>Solidago canadensis</u>		20	Y	FACU	Problematic Hydrophytic Vegetation*				
4.	<u>Daucus carota</u>		10		UPL	* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic				
5.	<u>Symphotrichum ericoides</u>		10		FACU					
6.	<u>Nepeta cataria</u>		5		FACU					
7.	<u>Symphotrichum novae-angliae</u>		1		FACW					
8.						Definitions of Vegetation Strata:				
9.						Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height				
10.						Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1M) tall.				
11.						Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.				
12.						Woody Vines - All woody vines greater than 3.28 ft in height.				
			96	Total Cover						
Woody Vine Stratum		Plot size:				Hydrophytic Vegetaion Present?				
1.										
2.										
3.										
4.										
			0	Total Cover		Yes		No		X

Remarks: Data were collected along the Driftmeyer Ditch riparian corridor and represent a typical non-disturbed reference condition.

SOIL

Sampling Point: DP-13

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

Depth	Matrix		Redox Features					
(inches)	Color	%	Color	%	Type*	Loc**	Texture	Remarks
None								No soil pit excavated.

* Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:				Indicators for Problematic Soils	
	Histosol (A1)		Stripped Matrix (S6)		2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Histic Epipedon (A2)		Dark Surface (S7)(LRR R,MLRA 149B)		Coast Prairie Redox (A16)
	Black Histic (A3)		Polyvalve Below Surface (S8) (LRR R, MLRA 149B)		5 cm Mucky Peat (S3) (LRR K, L, R)
	Hydrogen Sulfide (A4)				Dark Surface (S7) (LRR K, L, M)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Polyvalve Below Surface (S8) (LRR K, L)
	Depleted Below Dark Surface (A11)		Loamy Mucky Mineral (F1)		Thin Dark Surface (S9) (LRR K, L)
	Thick Dark Surface (A12)		Loamy Gleyed Matrix (F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	Sandy Mucky Mineral (S1)		Depleted Matrix (F3)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Sandy Gleyed Matrix (S4)		Redox Dark Surface (F6)		Red Parent Material (F21)
	Sandy Redox (S5)		Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
			Redox Depressions (F8)		Other (Explain in Remarks)

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: No soil pit excavated.



Appendix D

HHEI Scoring Sheets

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **Stream - 1 Driftmeyer Ditch**

SITE NUMBER

RIVER BASIN **Lake Erie**DRAINAGE AREA (mi²) **0.10**LENGTH OF STREAM REACH (ft) **300**LAT. **41.66695**LONG. **-83.44780**

RIVER CODE

RIVER MILE

DATE **10/11/12**SCORER **V. Tremante**

COMMENTS

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions

STREAM CHANNEL
MODIFICATIONS:
☐ NONE / NATURAL CHANNEL
 ☐ RECOVERED
 ☒ RECOVERING
 ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> SILT [3 pt]	<input checked="" type="checkbox"/> 90%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 1%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 3%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 5%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 2%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

 Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock **0.00%** (A)

 Substrate Percentage
Check **96%** (B)
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3**TOTAL NUMBER OF SUBSTRATE TYPES: **4**HHEI
Metric
PointsSubstrate
Max = 40

7

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

<input type="checkbox"/> > 30 centimeters [20 pts]	<input checked="" type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

Pool Depth
Max = 30

15

COMMENTS **3", 3.5", 3.5", 3"; flat silted channel;**MAXIMUM POOL DEPTH (centimeters): **15**

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

Bankfull
Width
Max=30

20

COMMENTS **9', 10', 9', 9'; avg - 9'3"**AVERAGE BANKFULL WIDTH (meters): **2.82**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS **Active agriculture and residential surrounding uses**

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS **Slow to stagnant flow**

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

☒ Flat (0.5 ft/100 ft)
 ☐ Flat to Moderate
 ☐ Moderate (2 ft/100 ft)
 ☐ Moderate to Severe
 ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: Distance from Evaluated Stream
☐ CWH Name: Distance from Evaluated Stream
☐ EWH Name: Distance from Evaluated Stream

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Oregon NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Lucas Township / City: Oregon

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/10/12 Quantity: 0.05
Photograph Information: Yes
Elevated Turbidity? (Y/N): N Canopy (% open): 40%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:

Additional comments/description of pollution impacts:

RR tracks and agriculture are both adjacent to the stream.

BIOTIC EVALUATION

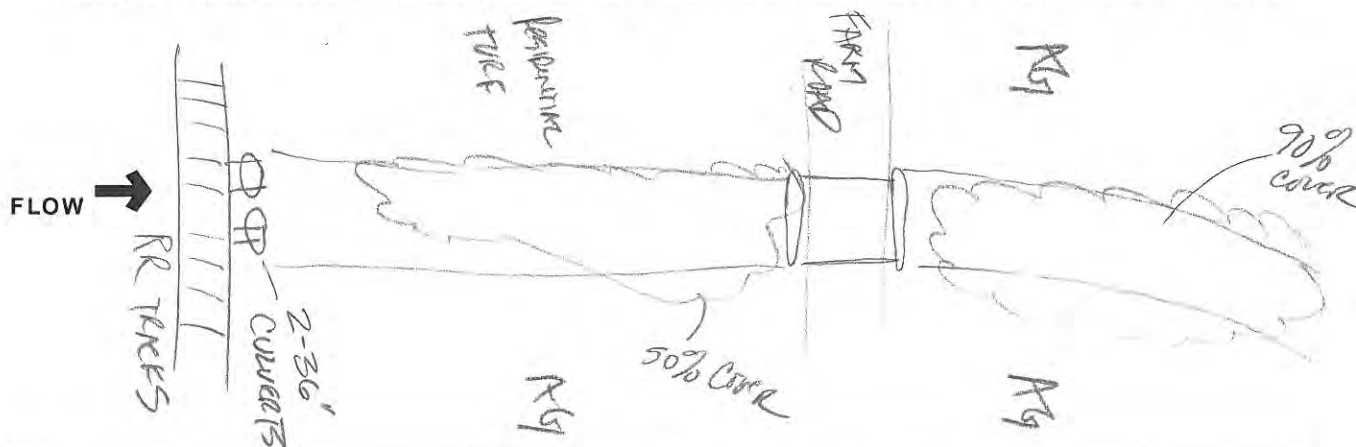
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology:

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





Primary Headwater Habitat Evaluation Form

25

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **Stream - 2 Johlin Ditch**

SITE NUMBER

RIVER BASIN **Lake Erie**DRAINAGE AREA (mi²) **0.22**LENGTH OF STREAM REACH (ft) **300**LAT. **41.66725**LONG. **-83.43990**

RIVER CODE

RIVER MILE

DATE **10/12/12**SCORER **V.Tremante**

COMMENTS

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL
MODIFICATIONS:☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check **ONLY** two predominant substrate **TYPE** boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

BLDR SLABS [16 pts]

BOULDER (>256 mm) [16 pts]

BEDROCK [16 pt]

COBBLE (65-256 mm) [12 pts]

GRAVEL (2-64 mm) [9 pts]

SAND (<2 mm) [6 pts]

PERCENT

0%
0%
0%
0%
0%
0%

TYPE

<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

SILT [3 pt]

LEAF PACK/WOODY DEBRIS [3 pts]

FINE DETRITUS [3 pts]

CLAY or HARDPAN [0 pt]

MUCK [0 pts]

ARTIFICIAL [3 pts]

PERCENT

0%
2%
0%
98%
0%
0%

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock **0.00%** (A)Substrate Percentage
Check **100%** (B)SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3**TOTAL NUMBER OF SUBSTRATE TYPES: **2**HHEI
Metric
PointsSubstrate
Max = 40

5

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check **ONLY** one box):

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

> 30 centimeters [20 pts]

> 22.5 - 30 cm [30 pts]

> 10 - 22.5 cm [25 pts]

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>

> 5 cm - 10 cm [15 pts]

< 5 cm [5 pts]

NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **No water**MAXIMUM POOL DEPTH (centimeters): **0**Pool Depth
Max = 30

0

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check **ONLY** one box):

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>

> 4.0 meters (> 13') [30 pts]

> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]

> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]

≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS **8', 7'-2", 10'6", 8'; avg=8'4"**AVERAGE BANKFULL WIDTH (meters): **2.54**Bankfull
Width
Max=30

20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L R

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

(Per Bank)

Wide >10m

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

Moderate 5-10m

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
-------------------------------------	-------------------------------------

Narrow <5m

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

None

COMMENTS

L R

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

(Most Predominant per Bank)

Mature Forest, Wetland

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

Immature Forest, Shrub or Old

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

Field

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

Residential, Park, New Field

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

Fenced Pasture

L R

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

Conservation Tillage

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

Urban or Industrial

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
-------------------------------------	-------------------------------------

Open Pasture, Row Crop

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

Mining or Construction

FLOW REGIME (At Time of Evaluation) (Check **ONLY** one box):

<input type="checkbox"/>
<input type="checkbox"/>

Stream Flowing

Subsurface flow with isolated pools (Interstitial)

<input type="checkbox"/>
<input checked="" type="checkbox"/>

Moist Channel, isolated pools, no flow (Intermittent)

Dry channel, no water (Ephemeral)

COMMENTS **No flow.**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check **ONLY** one box):

<input checked="" type="checkbox"/>
<input type="checkbox"/>

None

0.5

<input type="checkbox"/>
<input type="checkbox"/>

1.0

1.5

<input type="checkbox"/>
<input type="checkbox"/>

2.0

2.5

<input type="checkbox"/>
<input type="checkbox"/>

3.0

>3

STREAM GRADIENT ESTIMATE

☒ Flat (0.5 ft/100 ft)☐ Flat to Moderate☐ Moderate (2 ft/100 ft)☐ Moderate to Severe☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Oregon NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Lucas Township / City: Oregon, OH

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/10/12 Quantity: 0.05
Photograph Information: Yes
Elevated Turbidity? (Y/N): N Canopy (% open): 0%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____
Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

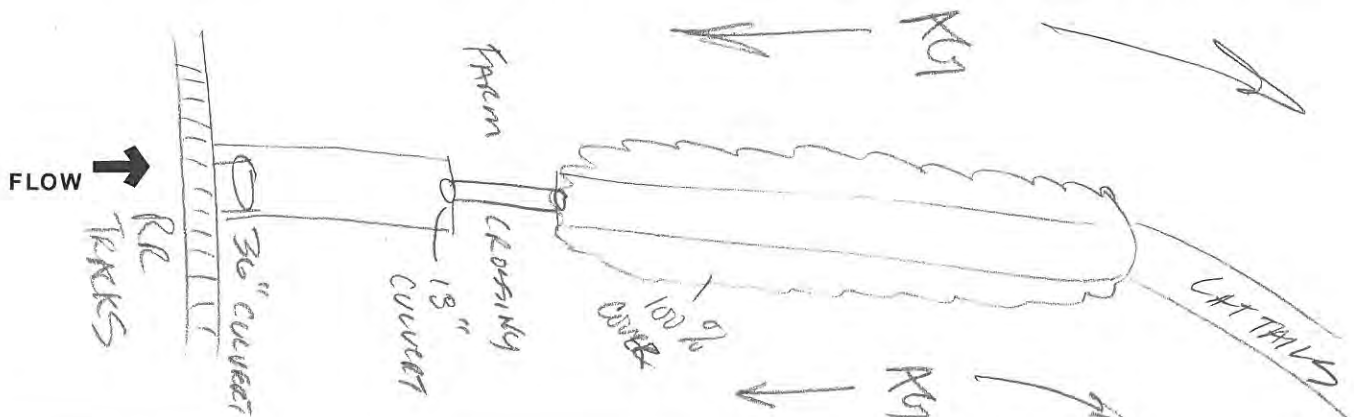
Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

1/17/2013 2:18:48 PM

in

Case No(s). 12-2959-EL-BGN

Summary: Application Appendix D: Wetland and Surface Water Report electronically filed by
Teresa Orahod on behalf of Oregon Clean Energy, LLC