

---

TO: Oliver III Wind, LLC  
FROM: Tetra Tech, Inc.  
DATE: October 9, 2017  
SUBJECT: Oliver III Wind Energy Center – Wetlands and Other Waters of the United States Survey Addendum No. 2

---

Oliver III Wind, LLC (Oliver III), a subsidiary of NextEra Energy Resources, LLC, contracted with Tetra Tech, Inc. (Tetra Tech) to conduct a wetlands and other waters of the U.S. (WoUS) survey within its operating Oliver III Wind Energy Center (Project) located in Oliver and Morton counties, North Dakota. The results of the initial, pre-construction survey of turbines and associated facilities to support Public Services Commission (PSC) permitting were presented in a report dated April 2016 (Tetra Tech 2016a). The first addendum to this report dated July 15, 2016 presented the results of additional survey efforts completed for modifications to the locations of turbines, service roads, haul route turning radii, crane paths, and the substation (Tetra Tech 2016b). The current addendum (Addendum No. 2) presents the findings of a survey effort completed in September 2017 for two proposed radar aircraft detection towers (radar towers) that are part of the Aircraft Detection Lighting System (ADLS) now required by the PSC. The two proposed radar towers (West Radar Tower and East Radar Tower) each include a staging area (approximately 126 feet by 126 feet), and power and communications lines (50 foot wide corridor) herein known as the Addendum No. 2 Survey Corridor (Attachment 1: Figures 1A and 1B).

This addendum includes a description of the methodology, results, and conclusions of the wetlands and other WoUS determination survey completed for the Addendum No. 2 Survey Corridor.

## **METHODS**

Tetra Tech conducted a desktop analysis of the Addendum No. 2 Survey Corridor to identify potential jurisdictional wetlands and other WoUS. Desktop analyses used the following sources of information: aerial photographs, the U.S. Geological Survey National Hydrography Dataset, U.S. Fish and Wildlife Service National Wetlands Inventory, and the National Resource Conservation Service Soil Survey Geographic database.

Wetland determinations for the Project generally followed the methodology found in the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the USACE Wetland Delineation Manual: Great Plains Region (Version 2.0; USACE 2010). Wetland presence/absence and boundaries were determined based on observations of vegetation, soils and hydrology. For a site to be

considered a wetland, there must be positive indication of dominance by hydrophytic vegetation, hydric soils and characteristic wetland hydrology. A transect would be established in a representative transition zone of each potential wetland, if present. The transect would consist of one sample point in the potential wetland, and if wetland criteria were met, one point in non-wetland. Vegetation, soils, and hydrology data would be recorded on data forms, and each potential wetland and sample point would be photographed. When present, Tetra Tech conservatively mapped wetlands and other WoUS to ensure the Project would remain below the USACE's Pre-Construction Notification (PCN) permitting thresholds. If present, observations of each potential wetland identified during the survey were documented using wetland determination forms that are on record at the Tetra Tech office in Bloomington, Minnesota.

A GIS specialist designed a geodatabase specifically for the Project that was used to (1) capture wetland and non-wetland feature location data in the field with Trimble Global Positioning System (GPS) technology and (2) manage and display features for quality control and electronic deliverables. The geodatabase was loaded on the Trimble Geo 7X handheld GPS with sub-meter accuracy running ESRI's ArcPad 10. The wetland scientists who captured the field data conducted a quality control review of the geodatabase to ensure any features collected corresponded with field observations.

If present, stream and pond features were mapped along their ordinary high water mark (OHWM) as defined by the USACE. Once the OHWM was observed in the field by the team, the GPS unit would be used to map this line where it would be crossed by planned elements of the Project infrastructure. For streams, observations of basin and channel features, flow characteristics, substrate, and the presence of aquatic vegetation and macroinvertebrates would be documented using stream data forms that are on record at the Tetra Tech office in Bloomington, Minnesota.

## **RESULTS AND CONCLUSIONS**

The wetlands and other WoUS survey for the Addendum No. 2 Survey Corridor was conducted in September 2017. During this survey, Tetra Tech identified no wetland or other WoUS features within the Addendum No. 2 Survey Corridor (Attachment 1: Figures 1A and 1B, Attachment 2: Photo Log).

There would be no new permanent or temporary impacts to wetlands or other WoUS resulting from the proposed radar tower.

**REFERENCES**

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. Vicksburg, MS: U.S. Army Engineer Waterways Experiment Station. Available online at <http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf>.

Tetra Tech. 2016a. Wetlands and other Waters of the United States Determination Report. Oliver III Wind Energy Center – Morton and Oliver Counties, North Dakota.

Tetra Tech. 2016b. Wetlands and Other Waters of the United States Survey Addendum. Oliver III Wind Energy Center – Stark County, North Dakota.

U.S. Army Corps of Engineers (USACE). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region. ERDC/EL TR-10-1, U.S. Army Engineer Research and Development Center, Vicksburg, MS.

**ATTACHMENTS**

Attachment 1 Figures 1A and 1B

Attachment 2 Photo Log










## **Attachment 1 – Figures**

**Figure 1-A  
Oliver III  
Wind Energy Center**

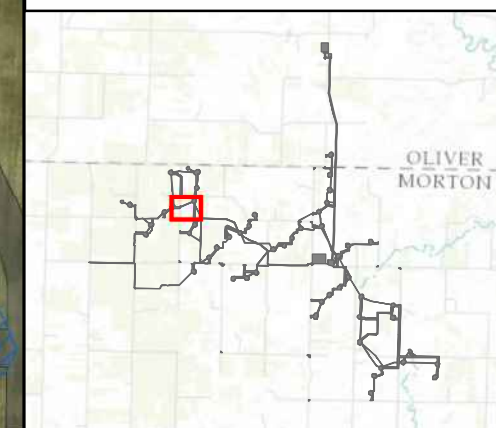
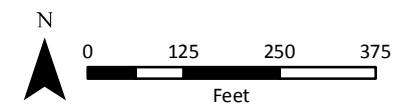


**Addendum No. 2  
Wetland Survey Results**

OLIVER AND MORTON COUNTIES, ND

-  Oliver III Wind Energy Center Turbine
-  Proposed West Radar Tower
-  Proposed Service Road
-  Proposed Power and Communication Lines
-  Addendum No. 2 Survey Corridor
-  Previously Surveyed for Wetlands
- Previously Reviewed Feature**
-  Previously Inventoried Wetland\*
- NWI and NHD Data**
-  NWI Wetland
-  NHD Stream or Waterbody

\*No previously inventoried wetlands are present within the previously surveyed areas shown on this map.



10/6/2017 S:\Projects\TT\_EC\Oliver\_FPI\GIS\Report\Figure1\_Addendum2\_Wetlands\_100617.mxd kathy.bellrichard












Source: Map adapted from Bing Map server; Project data provided by NextEra Energy - Radar Towers (09/06/2017).

**Figure 1-B  
Oliver III  
Wind Energy Center**

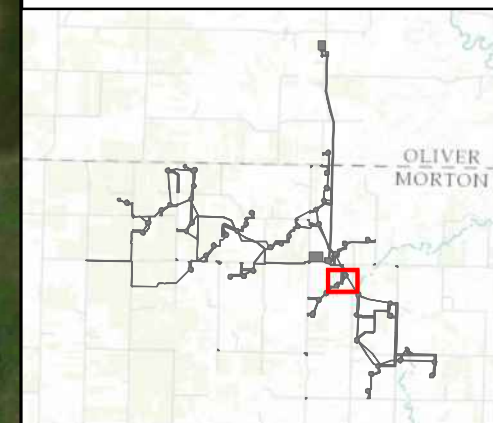
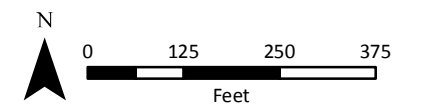


**Addendum No. 2  
Wetland Survey Results**

OLIVER AND MORTON COUNTIES, ND

-  Oliver III Wind Energy Center Turbine
-  Proposed East Radar Tower
-  Proposed Service Road
-  Proposed Power and Communication Lines
-  Addendum No. 2 Survey Corridor
-  Previously Surveyed for Wetlands
- Previously Reviewed Feature**
-  Previously Inventoried Wetland\*
- NWI and NHD Data**
-  NWI Wetland
-  NHD Stream or Waterbody

\*No previously inventoried wetlands are present within the previously surveyed areas shown on this map.



10/6/2017 S:\Projects\TT\_EC\Oliver\_FPI\GIS\Report\Figure1\_Addendum2\_Wetlands\_100617.mxd kathy.bellrichard

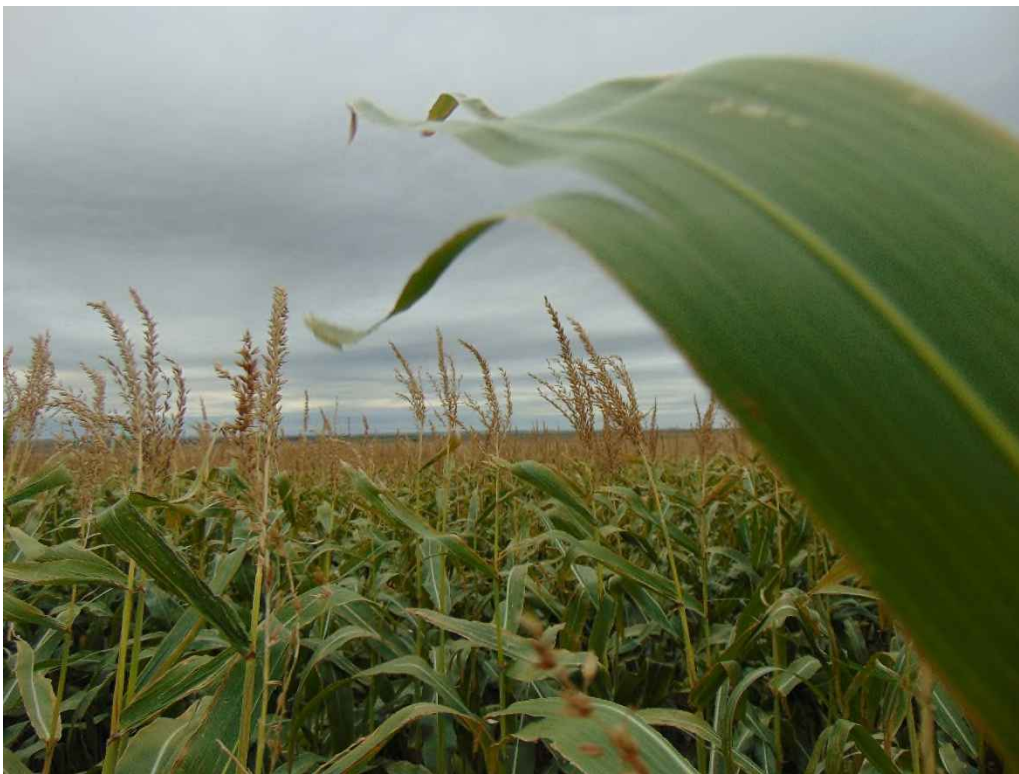


Source: Map adapted from Bing Map server; Project data provided by NextEra Energy - Radar Towers (09/06/2017).

## **Attachment 2 – Photo Log**



**Photograph 1 (Northeast):** An overview of the proposed staging area for the West Radar Tower from the southwest corner.



**Photograph 2 (Southwest):** An overview of the proposed staging area for the West Radar from the northeast corner.



**Photograph 3 (Southwest):** An overview of the proposed power and communications lines looking towards the staging area for the West Radar Tower from the center of the power and communications lines.



**Photograph 4 (Southwest):** An overview of the proposed power and communications lines looking towards the staging area for the West Radar Tower from the eastern end of the power and communications lines.



**Photograph 5 (Northwest):** An overview of the proposed staging area for the East Radar Tower from the southeast corner.



**Photograph 6 (Southwest):** An overview of the proposed power and communications lines looking towards the staging area for the East Radar Tower from the eastern end of the power and communications lines.