

# Merricourt Wind Power Project Topsoil Inspection Report PU-08-932/PU-19-144



*Prepared for:*  
**North Dakota  
Public Service Commission**

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# Executive Summary

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The North Dakota Public Service Commission (PSC) retained Wenck Associates, Inc. (Wenck) to complete topsoil inspections during construction of the EDF Renewable Development, Inc. (EDF)/Otter Tail Power Company (OTP) Merricourt Wind Power Project (Project). The purpose of the inspections was to ensure the Project is constructed in compliance with the siting laws and rules and the applicable PSC Orders for the Project, which includes a requirement that topsoil must be segregated from subsoil during Project installation. This Project was initially identified as case PU-08-932 and is understood to ultimately be transferred from EDF Renewable Development, Inc. to Otter Tail Power via PU-19-144.

The Project is located in McIntosh and Dickey County, North Dakota. The Project boundary includes approximately 13,156 acres of land which consists of 75 wind turbine generators with approximately 23.3 miles of access roads. Up to 4 meteorological towers with approximately 0.5 miles of access roads are proposed to be constructed. In addition, 6 alternate turbine locations with 1.8 miles of access roads have been identified. Approximately 41.0 miles of underground electrical collector cables are proposed to be needed to connect turbines to the Merricourt 230kV switch station owned by Montana Dakota Utilities. This switch station is centrally located within the Project boundary. A separate 230kV collection substation will be constructed by EDF immediately adjacent to the switch station to eliminate the need for and overhead generation intertie. An operations and maintenance facility will also be located within the Project area.

Wenck was present when construction involving soil disturbance for the Project began 8 August 2019. Prior to Project construction, Wenck reviewed Project documents to become familiar with the Project and PSC Orders for the Project. Wenck visually inspected the Project area on three separate occasions including 8 August, 10 and 19 September 2019 and observed topsoil and subsoil removal and segregation done by Wanzek Construction (Wanzek) and Strata Corporation (Strata). Overall soil removal and storage processes were satisfactory and completed properly. A single, isolated issue was observed where subsoil was mixed with a topsoil stockpile, however, after discussions with Wanzek Project Manager, a plan for resolving this issue was achieved.

# 1.0 Background and Scope

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## 1.1 INTRODUCTION

The Merricourt Wind Power Project is under the jurisdiction of the North Dakota Public Service Commission (PSC), which issued its Second Amended Findings of Fact, Conclusions of Law, and Order in Case No. PU-08-932 on 16 November 2017 and order of the Commission in Case No. PU-19-144 on 26 June 2019, granting Certificates of Site Compatibility No. 23 for the Project.

The Project will be a 75 primary wind turbine facility with 6 alternate turbine locations capable of producing 150 MW of power. The Project is located within McIntosh and Dickey County, North Dakota. The Project boundary is within the southern half of T131N, R67W, the northern sections and northeastern half of T130N, R67W and Section 1 of T130N, R68W of McIntosh County. The Project boundary within Dickey County includes Section 30, northwest quarter of Section 31, and Section 29, T131N, R66W. 41 miles of underground electrical collector cables are proposed to transport energy to an existing 230kV switch station and a separate proposed 230kV collection substation that are both centrally located within the Project boundary in the northwest quarter of Section 3, T130N, R67W.

The turbines EDF plans to utilize for the Project are Vestas, V110-2.0 MW turbines. These turbines reach a height of 262 feet at the hub, and the maximum height from tower base to blade tip will be 443 feet. The 13.5-foot diameter wind turbine towers will be mounted on concrete foundations approximately 25 feet in diameter and will each occupy an approximately 116-foot diameter gravel pad. These turbines will activate at windspeeds of 6.7 mph and have a rotor swept area of 102,289 square feet with a 361 foot rotor diameter. These turbines will shut off when windspeeds reach 44.7 mph. The withstandable windspeed for the turbines are 100 mph.

## 1.2 REGULATORY PURPOSE AND SCOPE OF WORK

The North Dakota Energy Conversion and Transmission Facility Act (North Dakota Century Code Chapter 49-22) authorizes the Public Service Commission to determine that the location, construction, and operation of jurisdictional energy conversion and transmission facilities will produce minimal adverse effects on the environment and the welfare of citizens of North Dakota. Construction inspections ensure that such Projects are constructed in compliance with the siting laws (North Dakota Century Code Chapter 49-22) and rules (North Dakota Administrative Code Article 69-06-08) and the applicable Commission Orders.

The North Dakota PSC retained Wenck Associates, Inc. (Wenck) to complete construction inspections, and specifically a topsoil inspection, of the Project. The inspection process included a review of the Application for Certificate of Site Compatibility, the Project's Order, and other applicable documents. PSC Order #15 for the Project states: "*Company understands and agrees that topsoil, up to 12 inches, or topsoil to the depth of cultivation, whichever is greater, over and along trench areas, roadways, tower locations, and locations of associated facilities must be carefully stripped and segregated from the subsoil. Any area on which excavated subsoil will be placed must first be stripped of topsoil. The stripped topsoil must not be stockpiled in natural drainages, and must be protected from water erosion. Care must be taken to protect topsoil from unnecessary compaction by heavy machinery. Unless otherwise approved by the Commission, topsoil must be removed before*

*topsoil freezes in the late fall/early winter to the point that frost inhibits proper soil segregation. After backfilling with subsoil is completed, any excess subsoil must be placed over the excavation area, blending the grade into existing topography. Topsoil must be replaced over areas from which it was stripped only after the subsoil is replaced.”*

Wenck’s scope of work was to perform and document on-site inspections during the topsoil removal phase of the Project to verify that topsoil was properly removed and kept segregated from subsoil until replacement occurred. The number of on-site inspections was based on Wenck’s determination that equipment operators demonstrated proficiency concerning topsoil and subsoil removal and segregation in compliance with the Commission’s Order. This report includes, but is not limited to, documentation of site visit observations and a summary of findings and issues that should be addressed for the Project to be considered complete and in full compliance.

## **1.3 BACKGROUND**

### **1.3.1 Regional Soils**

The Project is located in the Missouri Coteau of Dickey and McIntosh Counties. This area is identified as Central Dark Brown Glaciated Plains Major Land Resource Area (MLRA). The regional geology is primarily a result of the Wisconsin stage of glacial ice. The majority of the soils naturally occurring in the area are classified as Mollisols with the potential for some Inceptisols, or Entisols. Overall, the soils of this region are well suited for cropland, except the hilly to steep soils, and numerous ponded depressions.

The main difference between topsoil and subsoil in this region are most often the presence of calcium carbonates, salts such as sodium, and the reduction in organic matter. Calcareous soils can be visually distinguished by the lighter colors associated with calcium carbonates, which generally also correlates to a reduction in organic matter. Topsoil segregation on saline and sodium affected soils (i.e., natric soils) are usually less apparent, but can be distinguished by accumulations of salt, clay and/or associated columnar structure (i.e., clay pans). Salt-affected sodic soils, when tilled or disturbed, are typically hard and cloddy when dry, often coated with a visible salt crust.

### **1.3.2 Soil Stripping and Segregation Best Practices**

Topsoil has biological, physical and chemical properties that are critical to successful reclamation of the Project site. The surface layer of most soils is generally preferred for topsoil because of its content of organic matter. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth. Topsoil, typically considered the A horizon, should be stripped to the correct depth according to natural variations in the depth of this top layer of organic matter rich soil.

During Project preparation and excavation work, contractors are to segregate topsoil and subsoil. Mixing subsoil with the topsoil can be detrimental to the re-vegetation and vegetative productivity of a site. Subsoil material generally has lower organic matter content than topsoil, making it typically lighter in color. It may also have different chemical (i.e., salts) and physical properties (i.e., texture) than the topsoil. Occasionally, the most unfavorable characteristic of subsoil horizons is the accumulation of salts. Salts, such as sodium, among others, can severely restrict plant growth. The presence or absence of existing plant roots can be used as an indication between topsoil and unsuitable subsoil in certain situations, such as clay-pan subsoils.

To summarize, hilltops and steeper sloping terrain generally have thinner topsoil layers; while lower, flatter foot-slopes and swales typically have thicker topsoil layers. The most common exception to this are salt-affected soils, where the accumulation of salts and clay often restrict plant root growth. Equipment operators should be aware of the natural soil landscape relationships, as well as the potential for accumulations of salts, both of which drive topsoil thicknesses, and adjust stripping depths accordingly.

## 2.0 Project Inspections

### 2.1 METHODS

Wenck Field Inspectors: Matt Retka, Project Manager/Soil Classifier, and Jeremy Hackley, Field Inspector, visited the Project on 8 August, and 10 and 19 September 2019, respectively. John Papasergia, Project Manager, EDF Renewable Development, Inc. (EDF), Sean Peck, Construction Civil Superintendent, Wanzek Construction (Wanzek), and Paul Meland, Branch Manager/Construction Manager, EPC Services Company (EPCS) were contacted during inspections.

The Project was inspected visually by driving to access points and walking or driving to Project site features (i.e., turbine pad locations, access roads, etc.). Periodic test holes were dug in undisturbed topsoil adjacent to access roads and turbine sites to determine the depth of natural topsoil to compare with contractor stripping depths. In some cases, a 10% solution of hydrochloric acid (HCl) was used to test soils for effervescence, which is an indication of calcium carbonates.

Topsoil removal began on the day of the first inspection, 8 August 2019. Wanzek is the primary construction contractor company working on the Project. Wanzek began topsoil removal at the site of the proposed Operations and Maintenance (O&M) facility located approximately 3.75 miles west of highway ND-56 on 88<sup>th</sup> St. SE McIntosh County. The following inspections focused on particular areas throughout the Project site. Contractors/equipment operators were observed during topsoil removal to check that topsoil had been properly removed, piled, and kept segregated from subsoil. Digital photographs were taken showing typical Project infrastructure and documenting problem areas (**Appendix A**). Geographic coordinates were recorded at observation points or potential problem areas using a handheld Global Positioning System (GPS) (Trimble GeoXT, submeter accuracy, NAD83 datum and Garmin GPSMAP 60CSx; <10m accuracy; NAD83 datum) (**Table 1**).

### 2.2 ON-SITE INSPECTION OBSERVATIONS

Mr. Retka (Wenck) was accompanied by Sean Peck, Wanzek Construction Civil Superintendent, at the construction location on 8 August 2019. Wanzek contractors did not conduct any ground disturbing work until Wenck staff was on-site. The Project site had been mowed prior to arrival. Wenck discussed topsoil stripping requirements during a pre-construction meeting with Wanzek crew. At approximately 10:30 am, Wanzek operators used a combination of scraper and blade equipment to begin by stripping topsoil off the O&M site along with the Laydown yard. Wenck later met with the United States Fish and Wildlife Service (USFWS) staff in Kulm N.D. to discuss wetland easements and Piping Plover mitigation for the Project. Wayne Henderson (USFWS) explained that USFWS had reviewed the site layout and have no current issues with USFWS wetland easements. Mr. Henderson could not comment on the Piping Plover avoidance and minimization measures and differed to the USFWS Ecological Services office in Bismarck N.D. Overall, topsoil stripping was appropriately done at the O&M site. Wanzek crew seemed to understand PSC provisions and displayed a willingness to follow the variable stripping depths and to segregate soils appropriately. Wanzek crew demonstrated proficiency during the initial stripping activities. Silt fence installation commenced mid-afternoon on day one. (**Appendix A, Observation Points 2673-2681**).

A follow-up topsoil inspection was conducted on 10 September 2019. This inspection focused on the work that had progressed since the previous inspection. Mr. Hackley (Wenck) arrived at the Project O&M site and proceeded to inspected topsoil stripping depths of access roads and turbine installation sites. Previous persistent wet conditions impacted construction activities which were suspended for the day of this inspection. Observations were made of straw wattles and silt fences installed along swales and adjacent to wetlands to control topsoil erosion and sediment dispersion. Topsoil removal was completed at the proposed O&M location and the majority of the turbine sites along 88<sup>th</sup> St. SE., both of which looked adequate. However, Wenck staff observed an isolated incident of topsoil and subsoil partially mixed within a stockpile at turbine pad site 26 (**see Appendix A, Observation Point 188a-188d**). This issue was discussed with Mr. Peck. To resolve the issue, it was agreed upon to allow a backhoe to strip approximately 3 inches off the top of the mixed portion of the stockpile and distribute that amount of soil first during replacement, then distribute the rest of the topsoil on top of the partially mixed soil. This will help ensure that any subsoil/topsoil mix is located above the subsoil layer while still being buried beneath the unmixed topsoil. (**Appendix A, Observation Points 181-192**).

A final topsoil inspection was conducted on 19 September 2019. This inspection focused on a different contractor, Strata, slated to strip topsoil at the proposed site of a new substation adjacent to an existing substation. Mr. Hackley arrived shortly after the Strata operators began topsoil disturbance. Mr. Hackley was meet on-site by Paul Meland, EPC Services Company (EPCS), Branch Manager/Construction Manager at approximately 10:30 am. Mr. Hackley discussed topsoil stripping requirements with Mr. Meland and Strata operators. Strata operators understood the stripping requirements and continued with the soil stripping process. The in-situ topsoil for the site was previously disturbed structureless soil mixed with gravel to a depth of approximately 10-inches. Strata contractors were instructed internally to strip 4-inches of soil for stockpiling, which was understood to be later used as a perimeter berm for the proposed substation. Wenck recommends that none of this soil be mixed with the higher quality adjacent natural topsoil during any construction of the Project. A suspected topsoil stockpile presumed to be from pervious substation site construction was located at the east end of the proposed substation site and was completely covered with vegetation. A test hole was conducted upon the suspected topsoil stockpile which revealed dark-colored, non-calcareous soils to depths past in-situ topsoil of adjacent rangeland, confirming the likelihood of this stockpile containing previously salvaged topsoil. Mr. Meland said that this older stockpile would not be disturbed during construction. (**Appendix A, Observation Points 193-197**).

In general, both Wanzek and Strata did a good job with topsoil stripping and segregation. Contractors paid close attention to topsoil stripping depths which tended to vary several inches depending upon the topography of the location.

## 3.0 Issues, Resolutions, and Recommendations

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### 3.1 MINOR ISSUES OBSERVED

During site inspections, there was a location where the topsoil stockpile was observed to have some minor mixing with subsoil, which can be expected when working with large heavy machinery. Mr. Hackley and Mr. Peck discussed this issue and it was recommended that a backhoe could collect approximately 3-inches from the top of the stockpile and spread the mixed soil first before applying the remainder of unmixed topsoil. This would ensure that the mixed soil would be kept below the topsoil and any subsoil mixing would be very minimal. Mr. Peck concurred and the issue can be resolved during replacement.

### 3.2 OTHER RECOMMENDATIONS

Wenck recommends that care should be taken during topsoil replacement. With persistent rain events, subsoil sediment can collect adjacent to topsoil stockpiles as stormwater runoff travels into swales. This subsoil sediment could potentially mix with topsoil during topsoil replacement. It is recommended that contractors carefully redistribute subsoil sediments before replacing topsoil. This can ensure that there will be little to no mixing of soils and the overall majority of topsoil is placed back on top.

It is also recommended that the limited topsoil resources located at the proposed new substation site should not be mixed with adjacent, higher quality, natural soil during construction of the Project. Due to the substation site being previously disturbed, the soils are of significantly lower quality and would degrade any other topsoil should it be mixed. This recommendation was further relayed during a 3 October 2019 phone conversation with John Papasergia (EDF).

## 4.0 References

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- Henderson, Wayne. United States Fish and Wildlife Service. Personal Communication: discussion on August 8, 2019.
- Meland, Paul. EPC Services Company. Personal Communication: discussion during site visits on September 19, 2019.
- National Cooperative Soil Survey. Soil Survey of McIntosh County, North Dakota. USDA-NRCS, 2001.
- North Dakota Public Service Commission (ND PSC). 2019. Online Case Search. Available from: [http://www.psc.nd.gov/database/company\\_case\\_list.php](http://www.psc.nd.gov/database/company_case_list.php). Accessed August-September 2019.
- Papasergia, John. Richards, James. EDF Renewable Development Inc. Personal Communication: discussion during site visits on August 8, September 10 and 19, 2019 and on Project coordination for site visits.
- Peck, Sean. Wanzek Construction Inc. Personal Communication: discussion during site visits on August 8 and September 10, 2019 and on Project coordination for site visits.
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed September 2019.

## 5.0 Signatures

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The services performed by Wenck staff for this Project have been conducted in a manner consistent with the degree of care and technical skill appropriately exercised by professionals currently practicing in this area under similar time and budget constraints. Recommendations and findings contained in this report represent our professional judgment and are based upon available information and technically accepted practices at the present time and location. Other than this, no warranty is implied or expressed.

Project Manager, Matt Retka, and Field Inspector, Jeremy Hackley, prepared this report.



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Matt Retka, Project Manager

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10/03/19

Date



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Jeremy Hackley, Field Inspector

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10/03/19

Date











## 1. Observation Point Coordinates

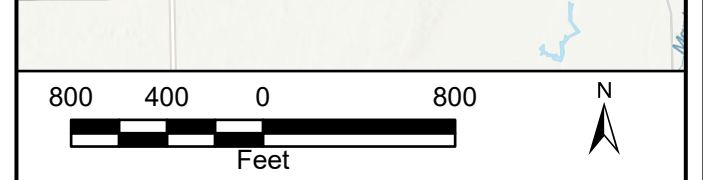
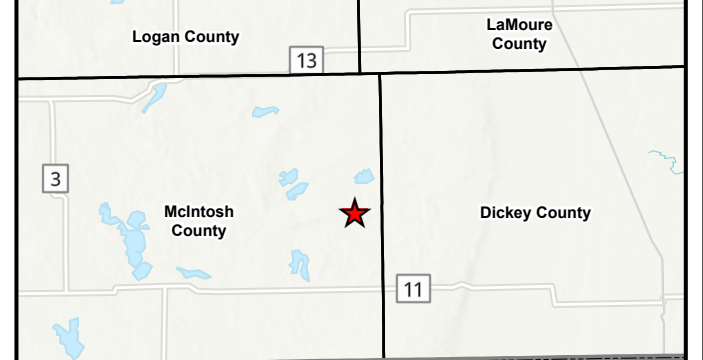
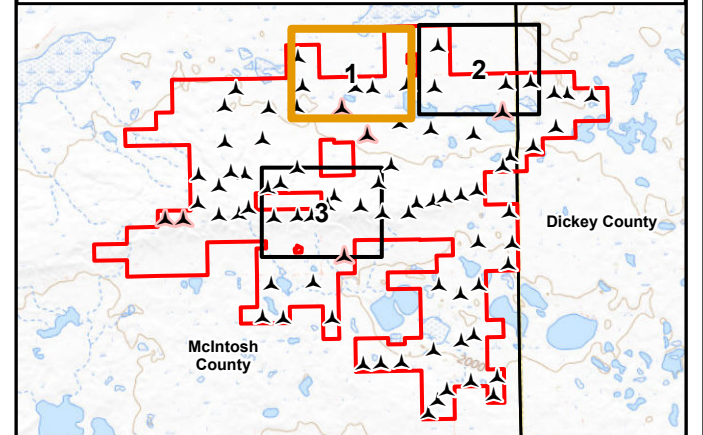
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2676ne	8-Aug-19	46.14148475	-99.02073527
2677n	8-Aug-19	46.14199085	-99.01936055
2678w	8-Aug-19	46.14223434	-99.01936299
2679	8-Aug-19	46.14242447	-99.02023594
2680sw	8-Aug-19	46.14246079	-99.02249332
2681e	8-Aug-19	46.14223049	-99.02277564
181	10-Sep-19	46.148962	-99.028587
182	10-Sep-19	46.145698	-99.028624
183	10-Sep-19	46.141357	-99.038387
184	10-Sep-19	46.140789	-99.038374
185	10-Sep-19	46.141104	-99.050089
186	10-Sep-19	46.140734	-99.049731
187	10-Sep-19	46.147353	-99.072726
188	10-Sep-19	46.147756	-99.073191
189	10-Sep-19	46.147254	-99.073516
190	10-Sep-19	46.140912	-99.003675
191	10-Sep-19	46.140615	-99.006076
192	10-Sep-19	46.140633	-99.006286
193	19-Sep-19	46.112281	-99.066137
194	19-Sep-19	46.112238	-99.06498
195	19-Sep-19	46.112994	-99.065592
196	19-Sep-19	46.113116	-99.066016
197	19-Sep-19	46.112782	-99.066196

### Topsoil Observation Locations

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**Merricourt Wind Farm  
Figure 1**

-  Topsoil Observation Point Location
-  Primary Turbine Location
-  Alternate Turbine Location
-  Met Tower Location
-  Primary Access Road
-  Alternate Access Road
-  Collection Line
-  O&M Area
-  Substation
-  Project Boundary



2018 Aerial Photograph (Source: NAIP)  
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PU-08-932 MERRICOURT WIND FARM TOPSOIL INSPECTION

Topsoil Observation Locations













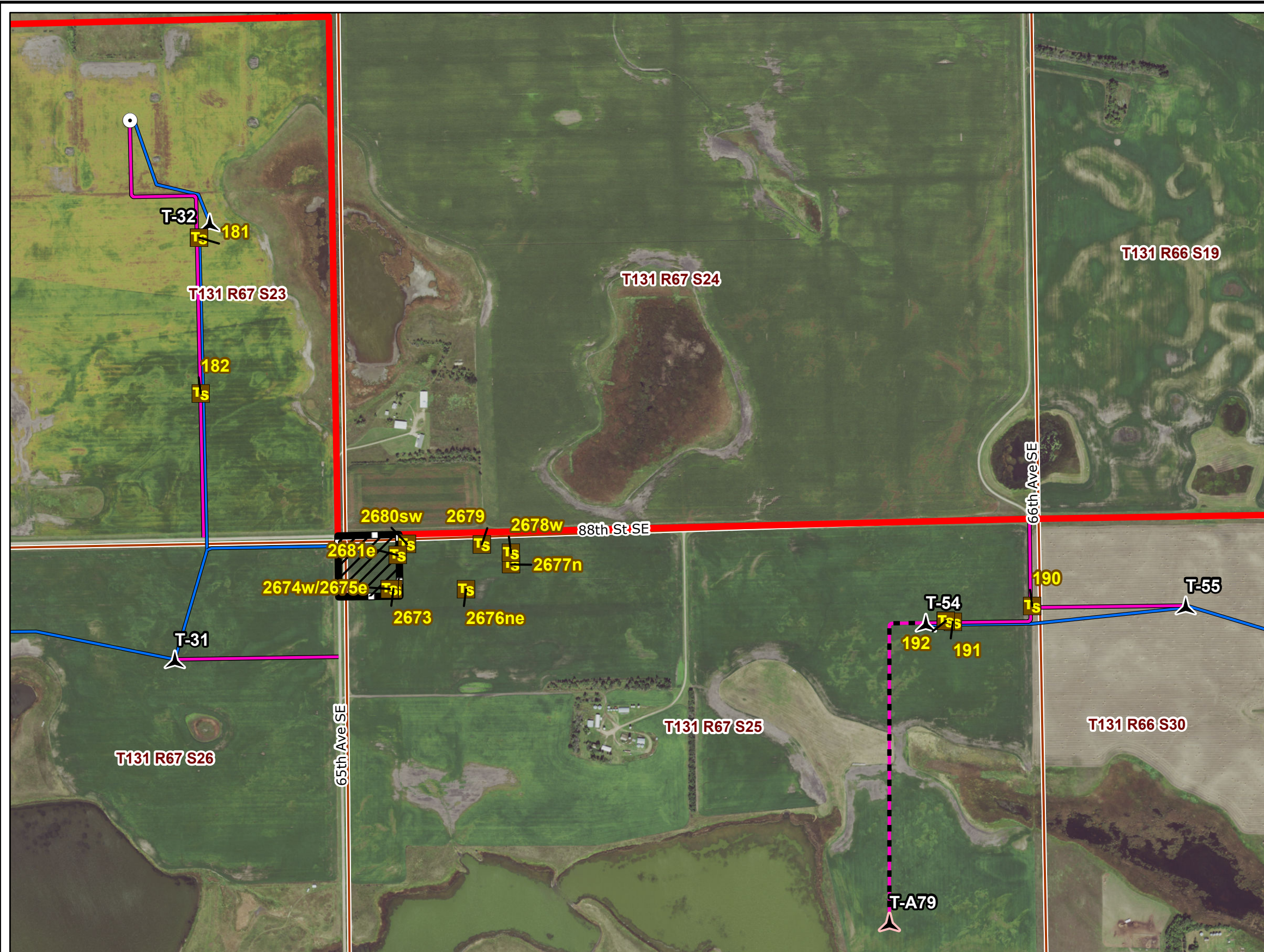
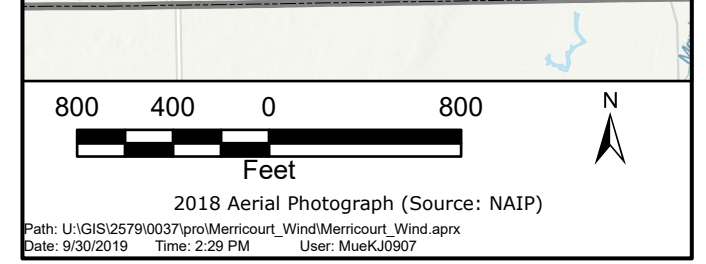
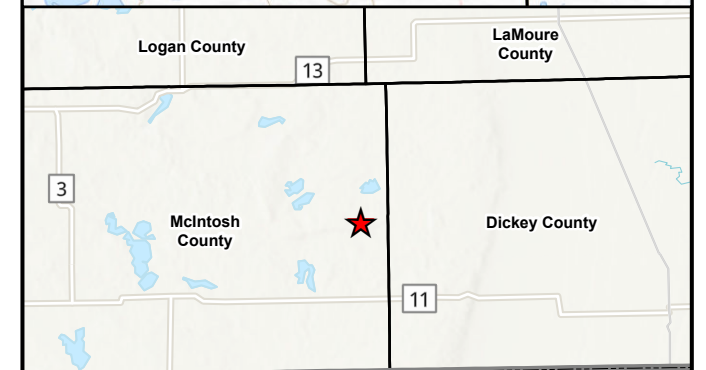
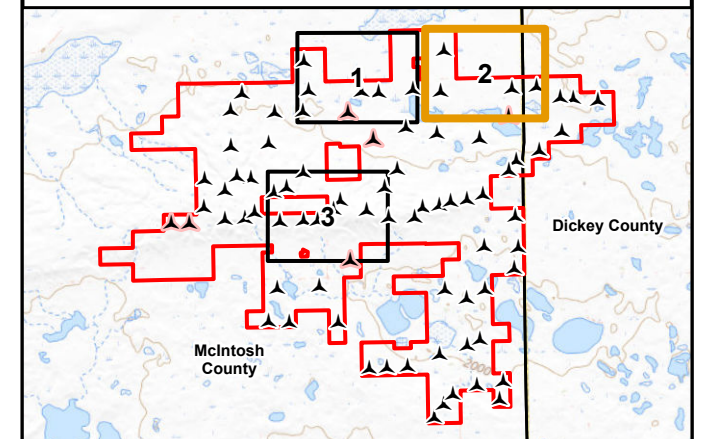
SEPT 2019

Map 1 of 3

**North Dakota  
Public Service Commission**

**Merricourt Wind Farm  
Figure 2**

-  Topsoil Observation Point Location
-  Primary Turbine Location
-  Alternate Turbine Location
-  Met Tower Location
-  Primary Access Road
-  Alternate Access Road
-  Collection Line
-  O&M Area
-  Substation
-  Project Boundary



PU-08-932 MERRICOURT WIND FARM TOPSOIL INSPECTION

Topsoil Observation Locations













Responsive partner. Exceptional outcomes.

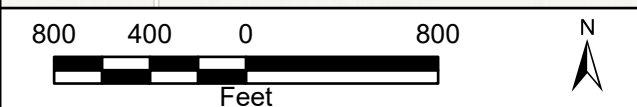
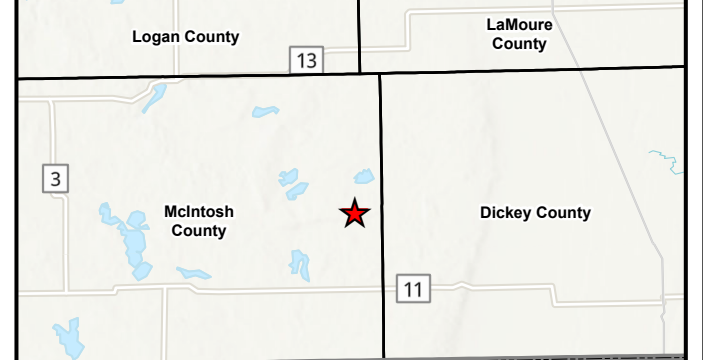
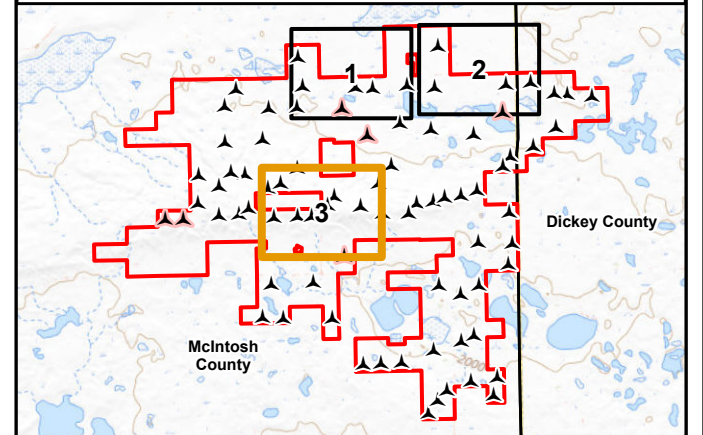
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Map 2 of 3

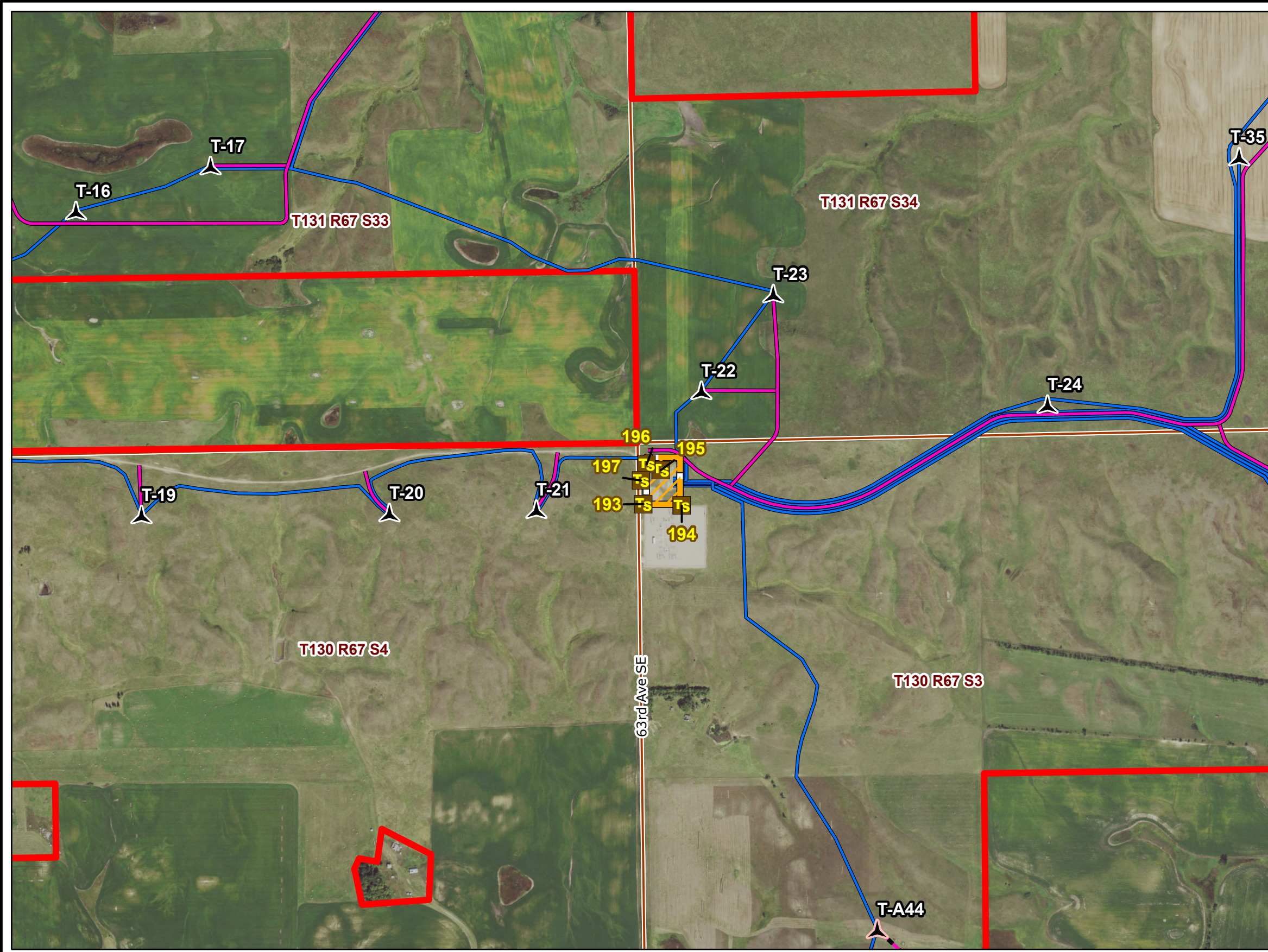
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**Merricourt Wind Farm  
Figure 3**

-  Topsoil Observation Point Location
-  Primary Turbine Location
-  Alternate Turbine Location
-  Met Tower Location
-  Primary Access Road
-  Alternate Access Road
-  Collection Line
-  O&M Area
-  Substation
-  Project Boundary



2018 Aerial Photograph (Source: NAIP)  
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PU-08-932 MERRICOURT WIND FARM TOPSOIL INSPECTION

Topsoil Observation Locations





SEPT 2019

Map 3 of 3

Inspection Photographs

<p><b>Photo Point: 2673</b></p>	
<p><b>Location of Photo:</b>                  Lat: 46.14152108                  Long: -99.02292837</p>	
<p><b>Direction Taken: NA</b>  <b>Description:</b></p> <p>Observation pit after initial pass of equipment showing additional stripping to a total of 12-inches would be needed at this particular location.</p>	
<p><b>Photo Point: 2674w</b></p>	
<p><b>Location of Photo:</b>                  Lat: 46.14152353                  Long: -99.02303751</p>	
<p><b>Direction Taken: West</b>  <b>Description:</b></p> <p>Initial stripping of project headquarter (O&amp;M) area.</p>	

<p><b>Photo Point: 2675e</b></p>	
<p><b>Location of Photo:</b>          Lat: 46.14152353          Long: -99.02303751</p>	
<p><b>Direction Taken: East</b>  <b>Description:</b></p> <p>Initial stripping of project headquarter (O&amp;M) area.</p>	
<p><b>Photo Point: 2676ne</b></p>	
<p><b>Location of Photo:</b>          Lat: 46.14148475          Long: -99.02073527</p>	
<p><b>Direction Taken:</b>          Northeast  <b>Description:</b></p> <p>Stripped boundary around (avoiding) a seasonal wetland.</p>	



<p><b>Photo Point: 2677n</b></p>	
<p><b>Location of Photo:</b> Lat: 46.14199085 Long: -99.01936055</p>	
<p><b>Direction Taken:</b> North <b>Description:</b>  Beginning of topsoil stockpile around the perimeter of the headquarter (O&amp;M) site.</p>	
<p><b>Photo Point: 2678w</b></p>	
<p><b>Location of Photo:</b> Lat: 46.14223434 Long: -99.01936299</p>	
<p><b>Direction Taken:</b> West <b>Description:</b>  Blade and scrapper at work.</p>	



<p><b>Photo Point: 2679</b></p>	
<p><b>Location of Photo:</b>          Lat:46.14242447          Long: -99.02023594</p>	
<p><b>Direction Taken: NA</b>  <b>Description:</b>          Additional 8-inches to Bk horizon should be stripped.</p>	
<p><b>Photo Point: 2680sw</b></p>	
<p><b>Location of Photo:</b>          Lat: 46.14246079          Long: -99.02249332</p>	
<p><b>Direction Taken:</b>          Southwest</p> <p><b>Description:</b>          Showing exposed calcareous subsoil where stripping was terminated at the correct depth.</p>	



<p><b>Photo Point: 2681e</b></p>	
<p><b>Location of Photo:</b>          Lat: 46.14223049          Long: -99.02277564</p>	
<p><b>Direction Taken:</b>          East</p> <p><b>Description:</b>          Stripping project headquarter (O&amp;M) area.</p>	
<p><b>Photo Point: 181a</b></p>	
<p><b>Location of Photo:</b>          Lat: 46.148962          Long: -99.028587</p>	
<p><b>Direction Taken:</b>          East</p> <p><b>Description:</b>          Overlooking T-32 pad site. Topsoil stripped to color change. Topsoil stockpile within the perimeter of the site.</p>	





<p><b>Photo Point: 181b</b></p>	
<p><b>Location of Photo:</b> Lat: 46.148962 Long: -99.028587</p>	
<p><b>Direction Taken:</b> Northeast</p> <p><b>Description:</b> Overlooking T-32 pad where silt fence has been installed adjacent to wetland.</p>	
<p><b>Photo Point: 182</b></p>	
<p><b>Location of Photo:</b> Lat: 46.145698 Long: -99.028624</p>	
<p><b>Direction Taken:</b> North</p> <p><b>Description:</b> Access road stripped to color change. Very predominate color change on hill summit.</p>	



<p><b>Photo Point: 183a</b></p>	
<p><b>Location of Photo:</b>          Lat: 46.141357          Long: -99.038387</p>	
<p><b>Direction Taken:</b>          Southwest</p> <p><b>Description:</b>          Overlooking T-30 pad site. Area stripped to color change. Topsoil stockpile within perimeter of site. Silt fence installed adjacent to wetland.</p>	
<p><b>Photo Point: 183b</b></p> <p><b>Location of Photo:</b>          Lat: 46.141357          Long: -99.038387</p>	
<p><b>Direction Taken:</b>          Southeast</p> <p><b>Description:</b>          Overlooking T-30 pad site. Area stripped to color change. Topsoil stockpile within perimeter of site. Silt fence installed adjacent to wetland.</p>	

<b>Photo Point: 184</b>	
<b>Location of Photo:</b> Lat: 46.140789 Long: -99.038374	 A close-up photograph showing a yellow measuring tape held vertically against a dark, moist soil profile. The tape is marked in inches, with the number '6' clearly visible at the top of the soil. The soil appears to be a dark, rich topsoil, and there are some dry, light-colored plant stems or roots visible in the upper part of the frame.
<b>Direction Taken:</b> NA  <b>Description:</b> Depth of topsoil stripped at monument at center of T-30 pad site is approximately 6-inches on backslope.	
<b>Photo Point: 185</b>	
<b>Location of Photo:</b> Lat: 46.141104 Long: -99.050089	 A wide-angle landscape photograph showing a large, flat field under a clear blue sky. In the foreground, there is a dark, muddy area with a small, shallow pond or swale. A straw wattle, which is a barrier made of straw, is visible along the edge of the swale. The background shows a flat expanse of land with some distant trees and a clear horizon.
<b>Direction Taken:</b> Northeast  <b>Description:</b> Straw wattle installed in swale along T-29 access road.	



<p><b>Photo Point: 186a</b></p>	
<p><b>Location of Photo:</b>          Lat: 46.140734          Long: -99.049731</p>	
<p><b>Direction Taken:</b>          South</p> <p><b>Description:</b>          Overlooking T-29 pad site. Topsoil stripped to color change. Topsoil stockpile within perimeter of site. Subsoil stockpile in center of site from pit dug for foundation.</p>	
<p><b>Photo Point: 186b</b></p>	
<p><b>Location of Photo:</b>          Lat: 46.140734          Long: -99.049731</p>	
<p><b>Direction Taken:</b>          South-southeast</p> <p><b>Description:</b>          Overlooking T-29 pad site. Topsoil stockpile within perimeter of site. Subsoil stockpile in center of site from pit dug for foundation.</p>	



<p><b>Photo Point: 186c</b></p>	
<p><b>Location of Photo:</b>  Lat: 46.140734  Long: -99.049731</p>	
<p><b>Direction Taken:</b>  Southeast</p> <p><b>Description:</b>  Overlooking T-29 pad site. Subsoil stockpile in center of site from pit dug for foundation. Silt fence installed.</p>	
<p><b>Photo Point: 187</b></p>	
<p><b>Location of Photo:</b>  Lat: 46.147353  Long: -99.072726</p>	
<p><b>Direction Taken:</b>  North</p> <p><b>Description:</b>  Overlooking T-26 pad site. Pit dug for turbine foundation. Topsoil stripped to color change. Topsoil stockpile on north and northwest side of perimeter. Subsoil stockpile placed around foundation pit.</p>	

<b>Photo Point: 188a</b>	
<b>Location of Photo:</b> Lat: 46.147756 Long: -99.073191	
<b>Direction Taken:</b> West-northwest  <b>Description:</b> Topsoil stockpile at T-26 pad site. Some subsoil mixing on right side of photo. Silt fence installed.	
<b>Photo Point: 188b</b>	
<b>Location of Photo:</b> Lat: 46.147756 Long: -99.073191	
<b>Direction Taken:</b> Northwest  <b>Description:</b> Continuation of topsoil stockpile at T-26 pad. Subsoil and topsoil mixing continues.	



<p><b>Photo Point: 188c</b></p>	<div data-bbox="191 262 488 430"> <p><b>Location of Photo:</b>                      Lat: 46.147756                      Long: -99.073191</p> </div> <div data-bbox="191 430 488 535"> <p><b>Direction Taken:</b>                      North</p> </div> <div data-bbox="191 535 488 1026"> <p><b>Description:</b>                      Continuation of topsoil stockpile at T-26 pad. Subsoil and topsoil mixing continues.</p> </div> 
<p><b>Photo Point: 188d</b></p>	<div data-bbox="191 1094 488 1262"> <p><b>Location of Photo:</b>                      Lat: 46.147756                      Long: -99.073191</p> </div> <div data-bbox="191 1262 488 1367"> <p><b>Direction Taken:</b>                      Northeast</p> </div> <div data-bbox="191 1367 488 1856"> <p><b>Description:</b>                      Continuation of topsoil stockpile at T-26 pad. Subsoil and topsoil mixing continues.</p> </div> 



<b>Photo Point: 189</b>	
<b>Location of Photo:</b> Lat: 46.147254 Long: -99.073516	 A photograph showing a soil profile in a field. A yellow measuring tape is laid horizontally across the soil to indicate depth. The soil is dark brown and appears to be a topsoil layer. There is some straw and plant matter on the surface.
<b>Direction Taken:</b> NA  <b>Description:</b> Soil profile from in-situ area adjacent to stripped T-26 pad site. Topsoil approximately 6-inches, violent effervescence begins at approximately 9-inches.	
<b>Photo Point: 190</b>	
<b>Location of Photo:</b> Lat: 46.140912 Long: -99.003675	 A photograph of a dirt access road between two rows of corn plants. The road is dark and appears to be a mix of soil and straw. The sky is blue with some clouds.
<b>Direction Taken:</b> East  <b>Description:</b> Access road for T-54 pad and T-55 pad sites stripped to color change.	

<p><b>Photo Point: 191</b></p>	
<p><b>Location of Photo:</b>                  Lat: 46.140615                  Long: -99.006076</p>	
<p><b>Direction Taken:</b>                  South</p> <p><b>Description:</b>                  Silt fence within swale along access road to T-54 pad. Sand sediment contained. Contractor correctly avoided topsoil stockpile in drainage area. Contractor will need to carefully segregate sediments during topsoil replacement.</p>	
<p><b>Photo Point: 192a</b></p>	
<p><b>Location of Photo:</b>                  Lat: 46.140633                  Long: -99.006286</p>	
<p><b>Direction Taken:</b>                  South</p> <p><b>Description:</b>                  Area stripped to color change at T-54 pad site. Silt fence contained sediment.</p>	

<p><b>Photo Point: 192b</b></p>	
<p><b>Location of Photo:</b> Lat: 46.140633 Long: -99.006286</p>	
<p><b>Direction Taken:</b> East</p> <p><b>Description:</b> Overlooking adequately stripped T-54 pad site.</p>	
<p><b>Photo Point: 192c</b></p>	
<p><b>Location of Photo:</b> Lat: 46.140633 Long: -99.006286</p>	
<p><b>Direction Taken:</b> Northeast</p> <p><b>Description:</b> Topsoil stockpile within T-54 pad site perimeter.</p>	

<p><b>Photo Point: 193</b></p>	
<p><b>Location of Photo:</b> Lat: 46.112281 Long: -99.066137</p>	
<p><b>Direction Taken:</b> Northeast</p> <p><b>Description:</b> Soil stripping in progress at new proposed substation location. Approximately 4-inches of soil stripped.</p>	
<p><b>Photo Point: 194a</b></p>	
<p><b>Location of Photo:</b> Lat: 46.112238 Long: -99.06498</p>	
<p><b>Direction Taken:</b> Northeast</p> <p><b>Description:</b> Soil stockpile on east side of new proposed substation site.</p>	

<b>Photo Point: 194b</b>	
<b>Location of Photo:</b> Lat: 46.112238 Long: -99.06498	
<b>Direction Taken:</b> North  <b>Description:</b> Overlooking east side of new proposed substation site. Majority of surface soils at site showed violent effervescence with HCl test.	
<b>Photo Point: 195</b>	
<b>Location of Photo:</b> Lat: 46.112994 Long: -99.065592	
<b>Direction Taken:</b> East  <b>Description:</b> Surface soils within new proposed substation site boundary prior to site stripping. Sparse vegetation suggests in-situ topsoil is limited to non-existent.	

<p><b>Photo Point: 196</b></p>	
<p><b>Location of Photo:</b> Lat: 46.113116 Long: -99.066016</p>	
<p><b>Direction Taken:</b> South</p> <p><b>Description:</b> Existing substation adjacent to new proposed substation site.</p>	
<p><b>Photo Point: 197</b></p>	
<p><b>Location of Photo:</b> Lat: 46.112782 Long: -99.066196</p>	
<p><b>Direction Taken:</b> South</p> <p><b>Description:</b> Overlooking new proposed substation site. New stockpile connecting with suspected previous topsoil stockpile</p>	



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